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An Examination on Un-Retirement: Retirees Returning to Work

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by
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ABSTRACT OF THE DISSERTATION

An Examination on *Un*-Retirement: Retirees Returning to Work

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Professor Nancy Morrow-Howell, Chair

Research that examines retirees returning to work—defined here as un-retirement—is important, given increases in life expectancy and retirement insecurity. Unfortunately research in this area is nascent, limited in scope, and riddled with mixed findings. The current study is guided by three research questions: (1) how do economic resources, as well as human and social capital, relate to un-retirement?; (2) how do other productive activities, including formal and informal volunteering and caregiving, relate to un-retirement?; and (3) how does the retirement experience, including reasons to retire and retirement satisfaction, relate to un-retirement? The empirical literature on wealth and its association with un-retirement is mixed, and thus, an exploratory approach is taken. It is hypothesized that other economic resources (income, pension presence, and health insurances) are negatively related to un-retirement; for example, people with lower levels of income are more likely to return to work. It is hypothesized that higher levels of human capital and social capital are positively associated with un-retirement. It is also hypothesized that productive activities both compete with, and complement each other, and it depends on intensity and timing of events. Specifically, volunteering is a positively associated with un-retirement; that is volunteering complements going back to work. It is also suggested

that caregiving is a barrier to un-retirement; that is, the two activities compete. It is hypothesized that forced retirement is positively associated with un-retirement. And finally, it is hypothesized that retirement satisfaction is negatively associated with un-retirement.

Data were drawn from the Health and Retirement Study (HRS) which provided a nationally representative sample of fully retired older adults aged 62 and older in 1998 (n=8,334). This sample was followed to 2008, which offered a 10-year period to observe factors associated with un-retirement. The fully conditional specification imputation method was used to complete all missing values of the study variables. Survival analysis tested the hypotheses and yielded information on the significant factors associated with un-retirement.

Findings reveal that total household net worth and income were not significantly related to un-retirement. Retirees who possessed a pension ($p<.05$, hazard ratio (HR):0.78, confidence limits (CL):0.63-0.97) and employer sponsored retiree health insurance ($p<.05$, HR:0.77, CL:0.62-0.95) were 22% and 23% less likely to return to work when compared to people who did not possess such economic resources for retirement. Generally, individuals with higher levels of human capital—better health ($p<.0001$, HR:1.31, CL:1.20-1.44), high-skilled ($p<.05$, HR:1.82, CL:1.20-2.75) and mid-skilled occupational workers ($p<.05$, HR:1.57, CL:1.07-2.28)—were more likely to return to work when compared to low-skilled occupational workers. This suggests that the probability of returning to work increased by 31% for every one unit increase in self-rated health; and the probability of returning to work were 82% and 57% higher for high and mid-skilled workers compared to low-skilled workers. Education, however, was negatively related to un-retirement when other productive activities were examined ($p<.05$, HR: 0.96, CL:0.93-0.99), which suggests that for every unit increase in education, the probability of returning to work decreased by 4%. Certain dimensions of social capital were also significantly

related to un-retirement; where the probability of returning to work increased by 75% for people who were married to an employed spouse/partner ($p<.0001$, HR:1.75, CL:1.36-2.23). Formal and informal volunteering were significant predictors to work; where volunteers were between 41% and 68% more likely to return to work when compared to non-volunteers. However, providing care to a spouse was a major barrier to returning to work; where caregivers were approximately 80% less likely to return to work in subsequent waves when compared to non-caregivers ($p<.01$, HR:0.20, CL:0.06-0.60). People who chose to retire were just as likely to return to work when compared to people who were forced to retire ($p=0.2023$) and people who were satisfied with retirement were just as likely to return to work than people who were dissatisfied ($p=0.2270$). Implications for policies and practices are discussed.

An Examination on *Un*-Retirement: Retirees Returning to Work

I. Introduction and Background

Introduction

Un-retirement, defined here as retirees returning to work, is an emerging phenomenon that has received scant empirical examination or scholarly attention. Research on un-retirement is nascent, limited in scope, riddled with mixed findings, and typically examines younger-older adults (50 years of age or older). The purpose of this study is to deepen and broaden our understanding of this emerging phenomenon prior to Baby Boomers fully aging into the sixth and seventh decades of life. What can we learn of un-retirement from the parents and grandparents of Baby Boomers? With increased retirement insecurity and extended longevity, research that examines who returns to work, how they successfully gain employment and why they return has the promise to inform policies and practices on the changing social contract of retirement. Moreover, this research aims to inform the transformation of institutions—such as educational and job-training opportunities, as well as formal volunteering opportunities for older adults—in order to create clear and distinct pathways for retirees to return to work should retirees choose and/or need to return to paid-work. Finally, this study examines how the social contract of retirement has fundamentally changed in its tenor and philosophy and highlights how these policy changes are likely to extend working lives.

The current study is guided by three research questions: (1) how do economic resources (total household net worth, global measure of income, pension presence, government sponsored health insurance, retiree health insurance), human capital (health, education, years of work experience, life-time occupational status, obtaining additional schooling/training) and social

capital (marital status, employment status of spouse/partner, parenting an adult child/grandchild) relate to un-retirement?; (2) how do other productive activities, including formal and informal volunteering and caregiving, relate to un-retirement?; and (3) how does the retirement experience, including reasons to retire and retirement satisfaction, relate to un-retirement? The empirical literature on retirement wealth and its association with un-retirement is mixed, and thus, an exploratory approach is taken. It is hypothesized that other forms of economic resources (global measure of income, pension presence, and health insurances) are negatively related to un-retirement; for example, people with lower levels of income are more likely to return to work. It is hypothesized that human and social capital are positively associated with un-retirement. It is hypothesized that forced retirement is positively associated with un-retirement. And finally, it is hypothesized that retirement satisfaction is negatively associated with un-retirement.

Background

Retirement: *An evolving concept of the social contract*

The concept of retirement is less than a hundred years old and yet it is deeply rooted in America's legal, financial, economic, and social institutions and deeply embedded in the culture and psyche of workers. Retirement has been supported through various financial instruments such as pensions and employer sponsored retiree health insurance, Social Security retirement income, and personal savings. This combination of public and private investments represented the social contract between individuals, employers, and society. Life-time investments made into these financial systems would enable individuals to withdraw from the workforce and enter into a stage of retirement in later life. Overall, this philosophy of "*let's do it together*" among public and private entities provided financial resources to sustain a period of leisure after a lifetime of work, commitment, and contributions. As discussed in the text that follows, the overall nature

and philosophy of "*let's do it together*" is changing to a "*do it yourself*" model (Quinn, 2010) or "*consumer-driven retirement*" model (Coughlin, 2011) where individuals are bearing more responsibility to save for later life and/or work during retirement. These philosophies and corresponding shifts of institutional arrangements—such as changes in pension types, health coverage in retirement, and legislative changes with Social Security—may help to explain why individuals are working longer.

Labor Force Participation Rates: 1930s to Present

It is instructive to trace the labor force participation rates of older adults starting from the roots of social insurance programs, namely New Deal legislation of the 1930s when the current Old-Age, Survivors and Disability Insurance (OASDI) systems were established. Between the 1930s to now, the labor force participation rate among older adults can be divided into two parts: the decline and the rise.

The decline. Since the 1930s, there has been a mixture of government regulated private insurance and employer sponsored pension and health insurance benefits that were specifically designed for retirement. Workers can begin to collect retirement benefits from the OASDI as early as 62 and the program has been nearly universal since 1940 (Burkhauser, 1995; Social Security Administration, 2012). After World War II, unions were powerful and advocated for the rights and privileges of employees, thereby fostering employer sponsored benefits—namely defined benefits and retiree health insurance. Employers increasingly saw the importance of pensions and retiree health insurance as a recruitment and retention tool (Munnell, 2011). Medicare was introduced in 1965 and there was a sharp increase in Social Security retirement benefits in 1972 (Burkhauser, 1995; Munnell, 2011). Real wages continued to increase during this time as well (Rejda, 1999). Taken together, these institutional instruments and larger forces

resulted in the uptake of retirement and helps to explain why the normal "normal" retirement age of men[1] declined from age 70 in the 1940s to 62 in the mid-1980s (Burkhauser, 1995; Munnell, 2011).

The rise. Since the mid-1980s, the labor force participation rate of older adults has steadily increased (Sloan Center on Aging & Work, 2012) and the trend to work longer is expected to continue. Between 2006 to 2016, the Department of Labor projected significant increases in labor force participation rates among older adults: an increase of 36.5% for people aged 55 to 64, 84% increase for people aged 65 to 74, and 84% increase for people aged 75 and older.

The fundamental philosophy of "let's do it together" has evolved to "you'll have to do it yourself" with changes in Social Security retirement benefits, employer sponsored benefits, and the inability and inadequacy of personal savings. The following discusses these issues.

The 1983 amendments to Social Security made working longer more appealing, relative to leisure, through three policy arrangements (Brown, nd; Munnell, 2011; Quinn, 1997). First, individuals who choose to retire between 62 and before Full Retirement Age receive a benefit cut (Social Security, 2012). Second, the full retirement age is slowly being raised from 65 to age 67 by 2026 which represents an overall benefit cut (Social Security, 2012; Munnell, 2011). Finally, the delayed retirement credit, which increases benefits for each year that claiming is delayed between the full retirement age and age 70, has also improved incentives to keep working (Munnell, 2011). Although mandatory retirement was abolished in 1985, many scholars agree that this legislation made a small impact (Brown, nd; Quinn, 1997).

[1] The "normal" retirement age is defined as the age at which only one-half of men or women remain in the labor force.

The costs of social insurance programs—specifically Medicare—will have to be squarely addressed in order to achieve solvency. Medicare spending has grown nine fold in the past 25 years, from $37 billion in 1980 to $336 billion in 2005 (CDC, 2009); and if left unrevised, will increase by 25% by 2030—largely due to the aging population. While there is much debate on Social Security and Health Care Reform, legislators are in general agreement that a balanced approach is necessary and that there will be a combination of benefit cuts and increase in taxes. In fact, President Obama is currently willing to cut Social Security, Medicare and other government benefits by lowering the cost-of-living adjustment by adopting a new measure, "chained" Consumer Price Index, where more than three-quarters of new revenue would come from Americans making less than $200,000 a year (*Los Angeles Times,* April 3, 2013; *New York Times*, January 21, 2013). Such a move by President Obama signals a strong desire to reach a compromise over a balanced budget and the future may hold significant reforms to the social contract that may result in a much higher need for families to save over their lifetimes. These future changes may also increase the need for retirees to return to work in order to earn an income to pay for medical costs and other basic living expenses.

Employers are also redefining their obligations and responsibilities for employee's retirement security. Although pensions are critical to the economic security of retirees, nearly half of the workforce, 78 million working Americans, lack employer-based retirement plans (Department of Labor, 2012). Defined contributions (DC) are replacing defined benefits (DB, Department of Labor, 2010), thereby shifting fiscal responsibility away from employers and onto employees. Employees—irrespective of sex, race, health status, educational levels—lack the financial literacy to manage complicated investment vehicles and often make unwise choices (Lusardi & Mitchell, 2011; Turner, 2011). Low-wage workers are particularly vulnerable to the

challenges of savings for retirement (Gonyea, 2007). In theory, defined contribution plans can significantly enhance retirement wealth. Munnell & Sass (2008) estimated that should a worker in the middle of the earnings distribution contribute regularly throughout his or her working life, he or she could have about $300,000 in a 401(k) or individual retirement account (IRA) at the pre-retirement stage of life. Yet, the median amount saved was $60,000 among pre-retirees (individuals 55-64) and the trend of not saving enough was true for people younger than pre-retirees. Finally, most participants opt for a lump-sum payment rather than a lifetime annuity (Gale & Dworsky, 2006), and these lump sums are rarely re-invested (Turner, 2011). In addition, real wages for many occupational groups have declined (Rejda, 1999; Bureau of Labor Statistics, 2012), which often hinders the ability of individuals and households to invest for retirement.

Another major shift in the world of retirement is health care coverage. The United States has seen incredible growth in health care expenditures over the last few decades where total health care spending accounted for 17.9% of the nation's Gross Domestic Product in 2010 (Martin, 2012). Since 2002, premiums for employer-sponsored health coverage increased by 97%—again, shifting much of the costs to individuals and families (Kaiser, 2013). Fewer employers are offering retiree health insurance due to the rising costs associated with the benefit and many expected to be nonexistent in the near future (Employee Benefit Research Institute, 2010; McCormack, Gabel, Berkman, Whitmore, Hutchison, Anderson, Pickreign & West, 2002; Munnell & Sass, 2008). Moreover, the generosity of the benefit has also declined as employers are increasing the premium contributions, co-payments, deductibles, and out-of-pocket limits (Munnell & Sass, 2008).

Jobs have also become less physically arduous (Quinn, 1998; Johnson, 2010), which may facilitate working in later years (Johnson & Mermin, 2008). Yet the opportunities to gain on-the-

job training and life-long learning will become more important as individuals will want to renew their knowledge, skills, and obtain new certification for jobs of the future.

Overall, employers are shifting financial responsibility for retirement security onto individuals and families, as their role in retirement security has weakened overtime. Cuts in Social Security are expected. In addition, jobs have become less physically demanding, which may facilitate the inclusion of older adults in the labor market.

With little investments in pension plans and decreased benefits of Social Security, one might expect workers to begin to save more by depositing money into savings accounts, home equity, or investment in real estate (Munnell & Sass, 2008). Yet, the 2009 Retirement Confidence Survey suggests that about half (53%) of workers have a total savings and investments—excluded value of home and any defined benefit plans—of less than $25,000 (Employee Benefit Research Institute, 2009). EBRI's previous study (2008) found that 50% of people aged 55+ have saved less than $50,000 and 28% had saved less than $10,000.

The value of homes has substantially declined with the economic recession (Employee Benefit Research Institute, 2009b), and housing debt has significantly increased from 41% in 1992 to 55% in 2007 for pre-retirees aged 55 to 64; and 18% to 43% in 1992 to 2007 for people aged 65 to 74 (Employee Benefit Research Institute, 2009b). Pre-retirees had the largest percentage point increase in credit card debt: from 37% in 1992 to 50% in 2007; the median amount owed increased from $2,416 in 2004 to $3,600 in 2007 (Employee Benefit Research Institute, 2009c).

In sum, institutional arrangements for retirement savings have changed in fundamental ways. The overall philosophy of "let's do it together" has evolved to "you'll have to do it

yourself." These changes have placed a heavy responsibility onto individuals to save. Unfortunately, few have saved enough.

The purpose of this dissertation is to examine empirically un-retirement in order to gain insight into the wide range of factors that are theoretically associated with going back to work in later life and to provide information to inform policies and programs. In a more abstract way, this dissertation also aims to critique the evolving social contract of retirement. A fundamental perspective that has informed this research is that of pragmatism—who returns to work in light of economic insecurity and extended longevity; and how do they return? This is but one perspective on a complicated and multidimensional issue. Future research can ask other fundamental questions such as: if society wishes to retain a culturally valuable concept—retirement—then how can we ultimately improve the opportunity to accumulate as many assets as possible over the lifetime? Another avenue to explore is how to maximize choice to engage in paid and nonpaid activities at the individual level, while still balancing the needs of society? Clearly the substantive area is fertile ground for much theorizing and empirical investigations. This study aims to clarify an unexplored area.

Working longer is a possible solution to economic insecurity and can be an activity that is valued among people who are healthier and expect to live longer. Moreover, there is a wide range of beneficial outcomes from paid-work, such as enhanced economic security, and under the right circumstances is associated with better health, social, and psychological outcomes, particularly when paid-work is a choice and the jobs are of quality (Calvo, 2006; Choi, 2001; Johnson, Pitt-Catsouphes, Besen, Smyer & Matz-Costa, 2008; Luoh & Herzog, 2002). Society is also poised to benefit. For example, an increase in the number of workers will increase the number of tax payers into important programs such as Social Security, Medicare, and other

federal and state taxes. In addition, recent research has also found that older workers contribute to the competitiveness of organizations as well as increase bottom-line profits (*The Telegraph*, August 13, 2009). Unfortunately, research that specifically examines un-retirement is nascent; many of the theoretical frameworks are limited in scope and the findings are mixed.

Definition

Currently, the normative dialogue among scholars is that retirement is not a single consuming period in later life but is rather a dynamic period with older adults entering and exiting the workforce in a fluid way and in multiple patterns (Adams & Rau, 2004; Altschuler, 2004; Brown, n.d.; Cahill, Giandrea, & Quinn, 2005, 2010; Choi, 2000, 2002; Hardy, 1991; Hill, 2002; Quinn, 1997a, 1997b; Munnell, 2011; Ozawa & Lum, 2005). The term "un-retirement" is used in this study because of its simple definition and operationalization: to return to work after having taken retirement (Measatas, 2010; Merriam-Webster, 2013). This simple definition has several advantages: (1) it is easier to measure than bridge employment, (2) it does not assume the motivations for going back to work, and (3) it does not assume that it is a job prior to retiring completely.

Prevalence

Research on un-retirement has stagnated: most of the research merely focuses on patterns and prevalence of retirees returning to work (Johnson, Butrica & Mommaerts, 2010; Shapiro, Brown, Drinkwater & Johnson, 2003). The findings from these studies are sobering: 15 to 26 percent of retirees return to work (Cahill, Giandrea & Quinn, 2010; Measatas, 2010). CareerBuilder recently reported that the majority (60%) of workers age 60-plus surveyed reported that they would look for a new job after retiring from their current company (CareerBuilder 2013). Should these statistics remain stable, approximately 11,700,000 to

19,500,000—if not more—Baby Boomers will return to work after retirement. This phenomenon may become even more common as life expectancy and economic insecurity continue to rise. Yet we know very little of this phenomenon aside from the fact that it is prevalent and will likely to continue.

The purpose of this dissertation is to deepen and broaden our understanding of this emerging phenomenon prior to Baby Boomers aging fully into the sixth and seventh decades of life. What can we learn of un-retirement from the parents and grandparents of Baby Boomers? This research aims to examine who returns to work, why they return, and how they successfully gain employment. Findings have the promise to inform policies and practices on important economic resources as well as to leverage the opportunities to work—not just for a few, but for everyone. And given the evolving philosophy of retirement, research that examines the presence or absence of economic resources (wealth, income, pensions, health insurance) can inform the likelihood of certain populations needing to unretire. As such, this research can help to inform the transformation of institutions in order to bolster economic resources and also create clear and distinct pathways for retirees to unretire should they choose and/or need to return to work.

As such, this study unifies divergent theories of un-retirement. It acknowledges and examines the importance of economic resources, paid and nonpaid activities such as volunteering and caregiving, the transition into retirement and the experience of retirement. Specifically, this study asks three research questions: (1) how do economic resources (wealth, income, pension and health insurance supports), as well as human capital (education, health, work experience, life-time occupational status, obtaining additional schooling/training) and social capital (marital status, work-status of partner, parenting) relate to un-retirement?; (2) how do other productive activities—including caregiving, formal and informal volunteering—relate to un-retirement?;

and finally, (3) how does the retirement experience, including the transition from work to retirement (forced or chose to retire) and retirement satisfaction, relate to un-retirement?

II. THEORY AND RELEVANT LITERATURE

Overview

The following section summarizes the theoretical and empirical literature on un-retirement. Overall, the literature on un-retirement is mixed and limited in scope. While several scholars have pointed to both economic and non-economic factors associated with un-retirement, no study has unified these multiple lines of inquiry, knowledge gaps remain, and few provide any theoretical discussions on the particular phenomenon. The present study draws from multiple theoretical frameworks and unifies these lines of inquiry in order to broaden and deepen our understanding.

RESEARCH QUESTION ONE

HOW DO ECONOMIC RESOURCES AND HUMAN AND SOCIAL CAPITAL RELATE TO UN-RETIREMENT?

Economic resources.

As discussed in the overview, the ability to withdraw from the labor force in later life is squarely dependent upon having enough financial resources. Traditional forms of economic resources include assets, income supports via pensions and Social Security retirement income, and health coverage via employer retiree health benefits and government coverage (Medicare, Medicaid, VA). Access and participation rates into these various public and private forms of supports vary and the traditional supports have been substituted with instruments that are less secure—such as defined contributions replacing defined benefits. Thus, theoretical discussion and empirical examination of such supports is imperative.

The life-cycle hypothesis of savings and consumption by Modigliani and colleagues (Ando & Modigliani, 1963, 1964; Modigliani & Brumberg, 1963) has dominated the assumptions and studies made by economists on labor force participation in later life (Deaton, 2005; Lahey, Kim, & Newman, 2006). Deaton (2005) states that Modigliani and Brumberg "worked out a theory of spending based on the idea that people make intelligent choices about how much they want to spend at each age, limited only by the resources available over their lifetimes. By building up and running down assets, working people can make provision for their retirement, and more generally, tailor their consumption patterns to their needs at different ages..." (*p.* 1).Lahey et al. (2006) noted that studies on retirement adequacy are either implicitly or explicitly based on the life-cycle model and assume that individuals prefer smooth consumption over their lifetimes (Yuh et al., 1998).

This theory clearly suggests that individuals work to earn an income, and retire or stay retired because they can afford to. Unfortunately, there is $6.6 trillion retirement shortfall facing Americans (Center for Retirement Research, 2010). Several studies suggest that Americans have not saved enough for retirement (Employee Benefit Research Institute, 2009, 2010, 2011, 2012) with about 60 percent of workers reporting that they have saved less than $25,000 (EBRI, 2012), and significant proportions do not participate in a pension plan (EBRI, 2012; Dushi & Iams, 2008). Moreover, more than half of workers have not calculated how much money they need for retirement (EBRI, 2012) and lack the financial literacy to make smart investments over their lifetimes. As a consequence, many retirees are more dependent on Social Security as a major source of their income (EBRI, 2012; Social Security Administration, 2012).

To put this particular study in context, economic growth was strong between 1989 and 1998; and in fact, stock prices had increased by 248% during this time period (Wolff, 2002).

Thus, households that invested in individual retirement funds, such as 401(k)s, IRAs and other defined contribution plans, would have expected an overall increase in wealth. Unfortunately wealth accumulation was not evenly distributed during this time. Only households with wealth holdings above $1 million experienced consistent increases in their wealth, after controlling for inflation, while all other wealth classes—even people with between $500,000 and $1 million in net worth—saw their retirement wealth fall from 1983 to 1998 (Wolff, 2002). Wolff (2002) found that Black and Hispanic households experienced a 19.9% drop in retirement wealth compared to a 6.1% increase among White households. Similar patterns were found with education; where college-educated households experienced a 6.4% increase in their average wealth but all others experienced wealth depreciation between 9.9% to 39.1% (Wolff, 2002).In addition, household wealth gains made after 1998 had disappeared by the third quarter of 2001, when household financial net worth returned to its third-quarter 1998 level (Wolff, 2002). Thus, the accumulation and maintenance of wealth is not evenly distributed.

Guided by the life-cycle hypothesis of savings and consumption, one would theorize that financial shortfalls of retirement wealth and income would be associated with un-retirement. Yet findings are mixed. Some studies have found that retirement wealth and income are negatively associated with un-retirement (Choi, 2000; Haider & Loughran, 2001; Singh & Verma, 2003; Ozawa & Lum, 2005; Walajtys, 2007). Yet, others studies have found that un-retirement is weakly or not significantly associated with wealth, financial shocks or retirement income (Hayward et al., 1994; Lahey et al. 2006; Maestas, 2010). Maestas (2010) theorized that un-retirement occurs because individuals have had an opportunity to rest—regain their health—and return to work; what may be called the "R&R" model: rest and return not rest and relaxation. The parameter estimates on wealth and income were insignificant while controlling for other

covariates in her study; yet health and health insurance coverage were significant and robust. Thus, the R&R model only explains some of the reasons retirees return to work.

It is possible that families could be asset rich with the ownership of a home or other materials but income poor in that they are unable to sell the assets and/or lack important financial instruments such as pensions or annuities that provide a steady stream of income. Thus, examining income sources is just as important as examining overall retirement wealth. The important role of pensions is noted by Choi (2000) who found that retirees were 250% more likely to return to work if they did not have a pension.

Health insurance, provided by the federal government and/or a former employer, helps to cover health care costs. Today, Medicare covers approximately 60% of costs associated with health care services but this coverage may decrease due to the rapid increase in Medicare spending. For example, Medicare spending grew nine fold in the past 25 years, from $37 billion in 1980 to $336 billion in 2005 (CDC, 2009); and if left unrevised, will increase by 25% by 2030—largely due to the aging population. Although the details to Social Security reform are not yet known, President Obama is currently willing to cut Social Security, Medicare and other government benefits by lowering the cost-of-living adjustment by adopting a new measure, "chained" Consumer Price Index, where more than three-quarters of new revenue would come from Americans making less than $200,000 a year (Los Angeles Times, April 3, 2013; *New York Times*, January 21, 2013). Such a move by President Obama signals a strong desire to reach a compromise for a balanced budget. Cuts, such as these described, will force many individuals and families to save more money than ever for health care costs. This forecast is grim considering that a 65-year old man today would need $70,000 in savings and a woman would

need $93,000 to reach a goal of having a 50 percent chance of having enough money for health care expenses (Employee Benefit Research Institute, 2012).

In addition, the provision of retiree health insurance sponsored by employers has declined quite significantly from 40% in 1995 to 28% in 2010 (Kaiser Family Foundation, 2011) as the costs associated with the benefit are increasing. Additionally, private employers are claiming bankruptcy as a means of discontinuing health coverage for retirees (*Wall Street Journal*, March 17, 2013) and many public-sector entities are largely under-funded or un-funded. Maestas (2010) found a large and statistically significant effect of post-retirement health insurance coverage, either by the federal government or former employer, where people without any source of health insurance are likely to return to work.

Overall, the evidence presented has pointed to the evolving social contract of retirement, particularly the opportunities to accumulate wealth in later life via pension participation, investments, and health insurance coverage in later life. As is clearly evidenced, the concept of retirement is under major revision, where liability and responsibility have and will continue to shift away from employers and the government and onto individuals.

A set of hypotheses are presented that stem from these observations. Clearly wealth, income supports and health insurance are important to sustain a period of retirement. Thus:

Exploratory Due to the mixed results of total household net worth and its association with un-retirement, an exploratory approach will be taken.

Hypothesis 1.1 Income is negatively associated with retirees returning to work; where people with less income are more likely to return.

Hypothesis 1.2 Pension presence is negatively associated with un-retirement.

Hypothesis 1.3 Government health insurance coverage is negatively associated with un-retirement.

Hypothesis 1.4 Retiree health insurance coverage via previous employer is negatively associated with un-retirement.

Although a focus on economic resources is clearly important, scholars have begun to criticize the life-cycle hypothesis in relation to un-retirement as too simplistic and that older adults return to work for both economic and non-economic purposes (Brown, n.d.; Hardy, 1991; Lahey, Melinda & Newman, 2006; Ozawa & Lum, 2005). Productive aging scholars have noted that older adults have much more capacity to remain engaged and contribute to society than ever before (Morrow-Howell, Hinterlong & Sherraden, 2001). Human and social capital theory, as well as role theory, may help to broaden our understanding of un-retirement. Each is discussed below.

Human Capital

Human capital is conceptualized as the stock of knowledge, skills and personal capacity to produce goods and services for economic value (Bloom, Lutz & Prskawetz, 2008; Coleman, 1988). Human capital has an inverted-U shape, meaning that the overall shape of educational and health investments made by individuals have an upward slope, eventually plateaus, and ultimately declines (Becker, 1975; Ben-Porath, 1967, 1970; Miner, 1994). Thus, formal education, on-the-job training, life-long learning, and health-producing behaviors are essential to the overall capacity of individuals to produce goods and services over their lifetimes. Without these continuous investments, the plateau and decline of human capital occurs at earlier ages (Miner, 1994).

Human capital among older adults is often operationalized as years of formal education, self-reported and objective measures of health; and many studies have documented how these factors are positively associated with workforce participation in later life as they give individuals the capacity to work (Choi, 2000; Haider & Loughran, 2001; Hill, 2002; Munnell & Sass, 2008; Ozawa & Lum, 2005; Prskawetz, Bloom, & Lutz, 2008; Singh & Verma, 2003). There has been improvement in the overall health of older adults. Freedman, Martin & Schoeni (2002) examined several well-publicized studies on disability trends among older adults in the United States. Overall, they found that while the literature was sometimes mixed, the rates of disability and functional limitations have declined substantially (Freedman & Martin, 1998; Freedman, Aykan & Martin, 2001; Manton, Corder & Stallard, 1993, 1997; Manton, & Gu, 2001). However, people of color, and lower socio-economic status are particularly vulnerable to worse health (McNeil, 2001; Ostchega, Harris, Hirsch, Parsons & Kington, 2000).

To put this study in context on health improvement, statistics drawn from government sources suggests that general well-being and mental health among older adults has improved from the 1990s to now (Agingstats.gov, 2013). Older adults who report many depressive symptoms often experience higher rates of health care utilization, physical illness, and greater functional disability. Between the years of 1998 to 2008 the percentage of people age 65 and over with clinically relevant depressive symptoms had decreased from 19% to 16% for women, although there was not a significant change among men—12% to 11% (Agestats.gov, 2013). Between the years of 1992 to 2009 the age-adjusted proportion of people age 65 and over with a functional limitation declined from 49% to 41% (Agestats.gov, 2013). The ability to work is often predicated on the ability to perform certain physical functions such as stooping/kneeling, reaching over-head, writing/grasping small objects, walking 2-3 blocks, or lifting 10 lbs. Rates of

physical functioning appeared to be unchanged between 1992 and 2009 although the physical demands of work had decreased (Johnson, 2010).

Although this core set of indicators for human capital are important, there are other dimensions to human capital in later life that warrant examination, such as work experience and obtaining additional schooling or career training. There has been some discussion that older adults' work "experience" has economic value (Bass & Caro, 2001; GAO, 2001, 2009; Freedman, 2001; Toder, Johnson, Mermin & Lei, 2008; Skirbeck, 2008). Skirbeck (2008) performed a simulated analysis in which experience was given high and low values and results suggest that experience increased productivity. In fact, the "brain drain" is a contemporary concept that suggests the world of work will have lost institutional knowledge and experience with the retirement of older adults, and specifically Baby Boomers (DeLong, 2004). Employers often cite older workers are committed and employers value older workers for their maturity, experience and work ethic (Mermin, Johnson & Toder, 2008). While these notions of work experience are difficult to operationalize, perhaps years of work experience and the type of occupations may be proxies for tapping into this concept as these factors suggest the type of skills and knowledge accrued over the working lifetimes.

It is also possible that older adults may also acquire additional schooling, certification or job training, which will renew their skills to match labor demands and enhance their job market prospects. In fact, there are two federally funded programs, the Workforce Investment Act Board and Title V of the Older Americans Act, which can help retirees gain the necessary skills and referrals to find employment. Specifically, Title V of the Older Americans Act is a federally funded program to help people 55 and older who are below the 125% poverty level obtain additional job related training, certification, job searching techniques and tactics, and job

referrals (Department of Labor, 2013). One-stop shops by the Workforce Investment Act funded by the federal government are another national program to help anyone of any age gain new knowledge and skills, interviewing techniques, and job referrals (Department of Labor, 2013). Community colleges as well as other educational institutions could be potential sources for older adults to regain marketable skills. Yet it is unknown if retirees utilize these public and private institutions when trying to return to work and no research to date has examined these other dimensions of human capital.

Overall, this broader conceptualization of human capital may provide substantive and practical implications for policies and practices because it points to the institutional arrangements necessary to help older retirees gain employment should they need or want to return.

Hypothesis 1.5 Human capital—operationalized as formal education, self-rated health, workforce experience (years of workforce attachment, occupations and industries with the longest tenure), and additional schooling, certification or job training—is positively associated with un-retirement.

Social Capital

The acquisition of employment requires not only human capital but also a network of family, friends, and acquaintances for job referrals, training opportunities, and career advancements. Social capital is often conceptualized as the stock of social linkages or connections among a closed network of people where there is a potential transfer of knowledge and resources that may benefit or advance its members (Bourdieu, 1985; Coleman, 1988). Although there are various definitions of social capital (Stephens, 2008), it is often operationalized through networks, trust, and norms of reciprocity (Ferlander, 2007). Due to the

limitations of the dataset used within this study, this particular dissertation places much of its emphasis on networks.

Studies document how family and friendship ties are positively related to workforce participation (Seibert et al. 2001; Stone, Gray, & Hughes, 2003). Sanders & Nee (1996) suggests that the family facilitates the pooling of labor power and financial resources. They also found that family composition accounted for a substantial portion of self-employment among Asian and Hispanic immigrants. Having a spouse who works could also expand the opportunities for job referrals (Stone, Gray, & Hughes, 2003). Married couples or partners have expressed desires to work and/or retire at the same time. Households that have a working spouse and a retired spouse express greater retirement dissatisfaction, and retired spouses are likely to return to work due to financial or personal reasons such as keeping busy and/or to stay active (Koppen & Anderson, 2008). Butrica and Schaner (2006) found that parenting expands the family's social capital because parents participate in children's activities in the school and larger community events. The parenting role demands resources—financial, psychological, social, energy and time—and thus, may also provide an economic incentive for retirees to return to work. Overall, social capital may be positively related to un-retirement because an expanded social network may result in higher levels of access to information, resources, career sponsorship and referrals, which can be made available to retirees searching for a job. Retirees that continue to actively parent may also need the economic resources to support their dependent children or grandchildren.

Hypothesis 1.6 Social capital—operationalized as marital status, having a working spouse, parenting—are positively associated with un-retirement.

RESEARCH QUESTION TWO

HOW DO OTHER PRODUCTIVE ACTIVITIES, INCLUDING CAREGIVING AND VOLUNTEERING, RELATE TO UN-RETIREMENT IN LATER LIFE?

Nearly all of the studies cited thus far fail to acknowledge how caregiving or volunteering relates to un-retirement. In fact, no study has examined if volunteering in later life is significantly related to work although this has been a normative and well-established path for younger people and adults (Corden & Angela, 2004; Corden & Sainsbury, 2005; Nichols & Ralston, 2011; Wilson & Musick, 1999). Moreover, the scholarship on productive aging has mostly focused on health and social outcomes of volunteering in later life and the negative and positive consequences of caregiving. Yet volunteering could have positive economic outcomes for retirees. Caregiving could also be a barrier to engaging in economic activity in later life as it often requires a tremendous amount of time and attention. This study aims to expand the conceptual framework of un-retirement by examining how other productive activities, namely formal/informal volunteering and caregiving, relate to un-retirement.

Concurrent engagement in multiple productive activities—paid and nonpaid activities—is expected with increased longevity and a shortfall of retirement wealth. Baby Boomers have expressed intentions to work and volunteer, and many expect to provide caregiving responsibilities (Butrica & Schaner, 2005). Caring for a spouse or parent(s) due to difficulties with activities of daily living or instrumental activities of daily living and/or parenting an adult child/grandchild is termed the "sandwich phenomenon." The sandwich phenomenon becomes even more complicated when one has to balance family responsibilities and obligations with paid-work. Although advocates have long been calling for employers to provide more flexible work arrangements to help balance family responsibilities, the discussion is overwhelmingly

focused on *younger* families (Christensen, 2013). It was only recently that a further rationale is because older adults also find themselves having difficulty balancing multiple productive activities (Walajtys, 2007). To date, only one qualitative study with a convenience sample of older adults has examined how caregiving relates to retirees going back to work (Walajtys, 2007). As Baby Boomers approach their sixth and seventh decades of life, the responsibilities to care for a family member and engage in paid-work may become more pronounced which warrants further empirical investigation. This particular study aims to understand how productive activities both compete and complement each other and seeks to inform policies, programs and practices such as flexible work arrangements, elder care, respite care, and corporate volunteer opportunities.

Role theory has a long sociological history with the scholarship of Mead's 1934 *Mind, Self, and Society*, Talcott Parsons's 1951 *The Social System*, and Robert Merton's 1949 *Social Theory and Social Structure*. Gerontological scholarship has been mostly influenced with Goode (1960), Sieber (1974), and Riley & Riley (1971). Generally, these scholars suggest that individuals acquire rights, responsibilities, power, and obligations through the social roles to be acted out in society. In fact, Riley & Riley (1971) noted that we structure society according to roles that are based on chronological age, and ultimately we create, promote, and perpetuate a society that is age-segregated. For example, the role of students is often assigned to young people, paid-worker to middle-aged workers, and retiree to older adults. These societal norms and expectations guide human behavior through social, psychological, legal, and economic institutions as they grow up and grow old. Riley & Riley (1971) critiqued this normative thinking and status quo, and called for a society that is age integrated—rather than segregated—where life-long learning, paid-work, and leisure, can be wholly integrated throughout the life-course

rather than a single social status absorbing multiple decades. As such, cognitive schemes, social institutions, legal and economic instruments must adapt.

Today, older adults are challenging normative age-assigned roles in a variety of ways. Un-retirement, for example, can be viewed as such a behavior that aims to break normative roles for older adults where some may choose to be engaged in paid-work. Moreover, rather than older adults absorbing a single status, such as retiree, they may choose to occupy several social roles in order to maintain and/or increase their rights, privileges, power, and social status. As such, older adults today and in the future may have desires to work part-time, care for family and friends, engage in their communities via formal and informal volunteering, and yet still enjoy some leisure.

There are two theoretical orientations to role theory: role enhancement and role strain. The theoretical orientation of *role enhancement* suggests that individuals aim to occupy as many social roles as possible because it fosters rights and privileges, and enriches ego and personality (Moen, Robison, & Dempster-McClain, 1995; Sieber, 1974). It has been found that the occupancy of multiple roles helps to buffer against the negative consequences of unanticipated events, such as health, economic, and social shocks.

A competing concept is *role strain*—that is, the interface of two or more roles occurring at the same time may create a conflict (Goode, 1960; Sieber, 1974). Role strain can be viewed as a multi-dimensional concept in which there are three dimensions—moral conflict, individual-societal incongruence, and time conflict. A moral conflict may also arise when fundamental values, principles and virtues of different roles contradict each other. The fundamental moral nature of productive roles is similar in that paid-work, volunteering, and caregiving are activities aimed to contribution to the self, family, community and larger society. The moral values that

underpin and link these activities together include being productive, giving back, providing economic and social support, being caring and responsible. Thus, it is argued here that the occupancy of multiple productive activities does not raise much concern of a moral conflict.

Individual-societal incongruence may occur when individuals choose not to "play out" their assigned role. The scholarship of Riley & Riley (1971) discusses the institutional lag that is out-of-sync with rapidly changing personal and cultural values, desires, preferences, and norms. For example, the Social Security Act of 1935 was partly motivated to keep older adults out of the workforce[2], and mandatory retirement is an explicit example that barred access into paid employment based on age. It was not until the 1970s with the legislative framework of Age Discrimination in Employment that specifically countered the historical context where older adults were expected to disengage from society. This particular legislation helped to promote the inclusion of older adults into paid activities. Legislation such as Age Discrimination in Employment and Social Security clearly had an impact on social and economic inclusion of older adults and is an exemplar of changing cultural values and expectations of a particular group of society—older adults. Today's social-psychological, economic, and legal milieu is somewhat mixed. On the one hand, legislation such as early retirement age for Social Security signals to older adults and others that retirement—that is, disengagement from paid-work—is culturally and socially valued. The rising number of age discrimination claims is another example that older adults are not welcomed in paid-work settings (U.S. Equal Employment Opportunity Commission, 2013). On the other hand, there are several institutional changes—such as the increased age for full retirement and the delayed-retirement credit—that signal working longer is

[2] It should be noted that the adoption of Social Security was at the height of the Great Depression and this policy encouraged older people to not seek employment or retire. As a consequence, this reduced competition for employment between generations (young/old) and also reduced the very high unemployment rate.

also valued. Older adults today and in the near future express several personal desires to remain engaged in work settings (Mor-Barak, 1995) yet experience push back on the basis of age discrimination from employers and fellow employees (Munnell, Sass & Soto, 2006). Others may want to exit the workforce due to health, discrimination, and/or the displeasure of working in physically demanding jobs or in workplace settings that are unpleasant. Retirement for them might be very appealing. Nonetheless—and in either case—there may be individual-societal incongruence or conflict with expectations and behaviors. Future research should examine this issue further.

For this particular study, the examination of how productive roles compete with each other over the precious resource of time is examined. Providing care—to a spouse, parent, or parent-in-law—requires significant time and energy; and thus, this particular type of care may prevent a retiree from returning to work. Walajtys (2007) found that the cessation of providing care to a spouse or parent resulted in retirees going back to work due to an increase in available time and a desire to socialize and feel productive (Walajtys, 2007). McNamara & Gonzales (2011) found significant proportions of older adults concurrently working for pay, volunteering both formally and informally, and providing care to parents/parents-in-law, their spouses, and children/grandchildren, among a nationally representative sample from the HRS during 2000-2008. Results suggest that productive activities were negatively associated with each other and that intensity levels mattered. For example, higher levels of caregiving were negatively associated with paid-work—suggesting the two activities compete for time.

The nature of volunteering is different from caregiving. Volunteering is often voluntary and self-selected; an activity that is visible to the public. A wide range of public and private volunteer opportunities exists for older adults. For example, the federal government supports

programs such as RSVP, Senior Corp, and Experience Corps. Volunteers typically have the ability to choose the nature, duration, and intensity of the role and thus, it may be easier for retirees to volunteer full time while not working and reduce their hours of volunteering when they return to work. For example, it has been documented that part-time workers volunteer more than full-time workers (Department of Labor, 2009; Musick and Wilson, 2008). Volunteering may have two indirect influences on retirees returning to work. First, volunteering could be positively related to unretirement as it can maintain and/or enhance older adult's knowledge, organizational functioning, and interpersonal skills, thus, making him or her an appealing job applicant in the paid-labor market (Gill, 2005; Musick & Wilson, 2008). Second, volunteering can also maintain and/or expand a social network of colleagues who could refer older retirees to job opportunities; thus, volunteers are nested into a network of individuals who may know of job opportunities (Gill, 2005; Musick & Wilson, 2008). The volunteer site could also become a source of employment. Thus, volunteering in previous years may be positively associated with un-retirement due to the maintenance and accumulation of human and social capital, and thus, volunteering could be positively related to work in later life.

Intensity levels among caregiving and volunteering should matter (Butrica & Schaner, 2005; Department of Labor, 2009; McNamara & Gonzales, 2011; Musick & Wilson, 2008; Walajtys, 2007). A person providing no care or little care may have time to return to work. The same is true for volunteering. High levels of caregiving and volunteering will prevent the retiree from returning to work.

Hypothesis 2.1 Volunteering is positively associated with un-retirement.

Hypothesis 2.2 Caregiving is negatively associated with retirees returning to work.

RESEARCH QUESTION THREE

HOW DOES THE RETIREMENT EXPERIENCE, INCLUDING REASONS TO RETIRE AND RETIREMENT SATISFACTION, RELATE TO UN-RETIREMENT?

Retirement is a major life stage that signals the completion of a lifetime of hard work and commitment. There are generally two schools of thought when it comes to retirement satisfaction: if individuals are successful at substituting the worker-identity role with retiree; and if the transition into retirement is planned.

Retirement has been commonly known as the roleless-role (Blau, 1981) or role discontinuity (Moody, 2009): what do you do when retired? A large body of work has focused on how the world of work shapes an individual's identity (Akabas, 2006; Ladkin & Palmer, 2012, Rosso, Dekas & Wrzesniewski 2011). A long tradition in gerontological research has pointed to the research performed by Miller dating to the 1960s, for example, who speculated that retirement would cause an identity crisis that would leave retirees without a sense of self-concept and worth. It is suggested that the world of work is more than just the opportunity to earn an income—it is an opportunity to be socially connected to people who share similar passions, interests, and values (Akabas, 2006; Rosso, Dekas & Wrzesniewski 2011); an opportunity to accomplish personal and professional goals (Rosso, Dekas & Wrzesniewski 2011), and an opportunity to remain engaged (Friedman, 2010). Zastrow and Kirst-Ashman (2009) note that people's worth is partly explained by what they do and how much they contribute to society. Mor-Barak (1995) found that older adults seek and obtain employment as a way to contribute to society and younger generations. A cross-sectional analyses of adults 55 and older in the Health and Retirement Study found that that retirees who engage in multiple activities concurrently—some work, some formal volunteering, some informal volunteering—are

significantly more likely to be very satisfied than inactive retirees (Butrica & Schaner, 2005), while controlling for age, sex, race, marital status, education, mental and physical health and income. They also found that retirees who were only providing care—as opposed to retirees engaged in multiple productive activities such as caregiving, volunteering, working—were less likely to be satisfied. Intensity levels mattered: being very satisfied in retirement was positively related to engaging up to 500 hours per year, where satisfaction appeared to be unrelated beyond 500 hours. Bender and Jivan (2005) and Lahey, Kim and Newman (2006) found that economic factors—financial security, work status of spouse, income from a defined benefit plan, presence of additional health coverage—as well as non-economic factors—retirement was a choice—were related to retirement satisfaction.

Thus, engaging in work is a multidimensional activity that improves economic security and helps to strengthen and expand social bonds and networks, and is ultimately a fundamental part of one's self-image, concept, identity and social status. Retirement—or the absence of a work identity—could be perceived as a period of economic insecurity and isolation; a purposeless and disengaged state of being where one experiences an identity loss and void. These results also point to the concept of generativity by Erik Erikson (Erikson, 1978, 1982) in which paid and nonpaid activities seek to give back, to leave the world a much better place, a sense of giving back and sharing wisdom, improving society, and remaining engaged in a way that helps families, friends, community, and society become a richer world. While returning to work may enhance personal outcomes, such as economic security, health, and life satisfaction, un-retirement may also be a means of giving back and transferring knowledge and expertise. Thus, retirement satisfaction and its relation to un-retirement is warranted.

Others may give back to society through grand-parenting, volunteering, and helping friends and neighbors—not necessarily going back to work. Atchley (1971) had observed that older adults can substitute the worker role with other roles and achieve a sense of satisfaction. In fact, nearly seventy-five percent of full-time retirees report that they are very or pretty happy with their lives (Taylor, et al. 2008) and nearly all (97%) state that they do not want to work for pay (Rix, 2011). Moreover, because retirement has become an expected life-stage with its own rights and privileges (e.g., the right to economic support through public insurance; right to leisure), the 'work role' can be replaced with 'retired role' thus avoiding an identity crisis or void (McNamara & Williamson, 2013). Overall, one's self-identity is plastic and malleable. According to this line of thinking, the opportunity not to work and engage in other meaningful activity can be a source of life satisfaction in later life.

Much of this discussion assumes that retirement is planned. Unfortunately, a growing number of older workers are susceptible to age discrimination, downsizing, and labor market contractions. Szinovacz & Davey (2004) found that nearly a third of retirees were forced into retirement either due to health limitations, job displacement, and care obligations. Irrespective of age, people who are unemployed report high levels of depression, a loss of self-respect, and strained family relations (Morin & Kochbar, 2010). Others have found that forced retirement, or involuntary retirement, has negative impacts on health (Gallo, Bradley, Siegel, Kasl, & Stanislav, 2000; Van Solinge, 2007), well-being (Calvo, Haverstick, & Sass, 2009; Isaksson & Johansson, 2000; Van Solinge & Henkens, 2008), and depression (Brand, Levy, & Gallo, 2008). As such, deleterious health related behaviors such as smoking, reduced physical activity, increased alcohol consumption among nondrinkers, and ultimately, physical disability have been linked to forced retirement (Falba, Teng, Siondclar, & Gallo, 2005; Henkens, Van Solinge, & Gallo,

2008). When compared to people who chose to retire, forced retirees face significant health disparities (Crowley, 1986; Hershey & Henkens, 2013). People who are forced to retire are often not economically, psychologically, or socially prepared for such an event. The importance of further investigation of retirement-to-work patterns among people who are forced to retire is warranted in order to create policies and programs that help to mitigate the deleterious impact of unplanned transitions.

Hypothesis 3.1 Forced retirement is positively associated with un-retirement.

Hypothesis 3.2 Retirement satisfaction is negatively associated with un-retirement.

Research Questions and Hypotheses

Question 1 How do economic resources (wealth, income, pension coverage, insurance), human capital (education, health, work experience, life-time occupation, additional schooling/training) and social capital (marital status, working spouse, parenting an adult child/grandchild) of retirees relate to un-retirement?

Exploratory Due to the mixed results of wealth and its association with un-retirement, an exploratory approach will be taken.

Hypothesis 1.1 Income is negatively associated with un-retirement.

Hypothesis 1.2 Pension presence is negatively associated with un-retirement.

Hypothesis 1.3 Medicare coverage is negatively associated with un-retirement.

Hypothesis 1.4 Possession of retiree health insurance via previous employer is negatively associated with un-retirement.

Hypothesis 1.5 Human capital—operationalized as formal education, self-rated health, workforce experience (years of workforce attachment, occupations and industries with the longest tenure), and additional schooling, certification or job training—is positively associated with un-retirement.

Hypothesis 1.6 Social capital (marital status, working spouse, parenting, number of people in household) is positively associated with un-retirement.

Question 2 How do other productive activities, including volunteering and caregiving, relate to un-retirement?

Hypothesis 2.1 Volunteering is positively associated with un-retirement.

Hypothesis 2.2 Caregiving is negatively associated with retirees returning to work.

Question 3 How does the retirement experience, including forced retirement and retirement satisfaction, relate to un-retirement?

Hypothesis 3.1 Forced retirement is positively associated with un-retirement.

Hypothesis 3.2 Retirement satisfaction is negatively associated with un-retirement.

III. Methods

Data Source

Data are derived from the Health and Retirement Study (HRS) for the years 1998 to 2008. The HRS is a large-scale, longitudinal project that studies the labor force participation and health transitions that individuals undergo in their later lives and is funded by the National Institute on Aging and administered by the Institute for Social Research at the University of Michigan (University of Michigan, 2010). Respondents are surveyed every two years. The HRS has collected information from a national random sample of persons born between 1942 and 1953 (including early Baby Boomers) in addition to people born in 1941 or earlier. It has become the premier data source on health and economic conditions of older adults in the United States.

Sampling Design

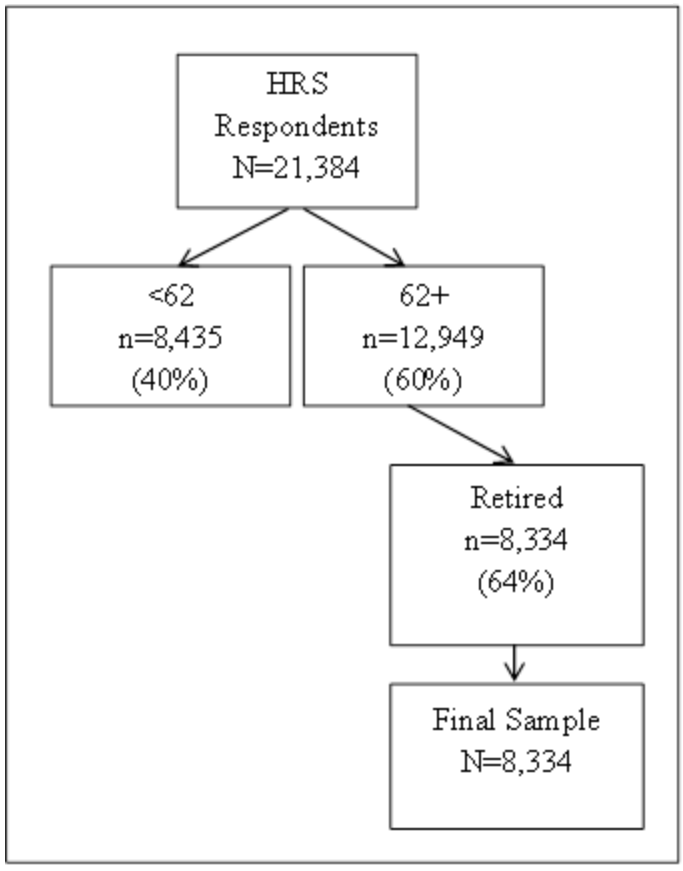
Survey interviews were primarily done by telephone with the exception of when respondents had a health problem in which an hour-plus session was difficult or impossible and thus face-to-face interviews were conducted (HRS, 2008). The HRS sample was obtained under a multi-stage area probability sample design with four distinct selection stages (University of Michigan, 2013). The first stage of sampling involved probability proportionate to size (PPS) selection of U.S. Metropolitan Statistical Areas (MSAs) and non-MSA counties, followed by a second stage sampling of area segments within sampled primary stage units (SSU). The third stage of sampling selection was preceded by a complete listing (enumeration) of all household units that are physically located within the bounds of the selected SSU. Systematic selection of housing units from the HU listings for the sample SSUs was the third stage. Finally, the HRS selected the household financial unit within a sample of HU. The HRS oversampled Black and Hispanic respondents as well as respondents of the State of Florida. Household and person level

response rates were very high and exceeded the 80 percent response rate required (University of Michigan, Survey Design, 2008). To maintain the representativeness of the sample, person level weights for 1998 were utilized in all analyses from descriptive tables to survival analyses.[3] PROC SURVEYPHREG was used in all multivariate analyses due to the sampling frame.

Inclusion Criteria

Inclusion criteria at baseline for this study are (a) older adults aged 62 or older in 1998, (b) claimed retirement status, and (c) reported **not** working any hours or any weeks. At baseline, 8,334 individuals met these criteria. The rationale for the inclusion criteria are as follows: age 62 was chosen because that is when individuals are eligible to apply for early Social Security retirement benefits. Criteria "b" and "c" are a verification process to ensure that individuals are truly retired. Many studies on un-retirement have used self-reported retirement status alone—which is an unreliable and imprecise measure (Cahill, 2010). There were 21,384 respondents in the HRS in 1998, of which 12,949 (60%) were 62 years of age and

Figure 1. Inclusion criteria at baseline



[3] The original person-level weight provided by the HRS inflated the power, where SAS believed I had millions of respondents rather than thousands. To resolve this issue, I created a new weight (FWGTR_NORM=FWGTR/2967.27754), where the original weight was divided by its mean (HRS personal correspondence, 2013).

older. Of people, 8,334 (64%) claimed retirement status and were not working any hours or any weeks; leading to the final sample size.

Power Analysis

The sample of 8,334 retired older adults provides ample statistical power for the proposed analyses. Using hazard ratios found in the literature (Maestas, 2009), it was found that males are twice as likely to re-enter the workforce as females. I completed a power analysis with an effect size of 2.0 and a 60/40 split in group weights (reflecting the gender distribution of the sample where 60% are female). Results indicated that 80% power is achieved with a sample size of only 170.

Measures

Two HRS data products were used for analyses: RAND's HRS harmonized dataset with imputed wealth and income variables and the University of Michigan's Institute for Social Research (ISR) fat files. Fat files from ISR were used because RAND's HRS did not have all of the variables of interest, i.e. formal and informal volunteering, providing care, reasons for retirement.

Dependent Variable (retirement status: *re-entered the workforce, y/n).*

Given the inclusion criteria of the sample, a dichotomous dependent variable was constructed as un-retired: yes or no. If the respondent reported partly-retired, or reported working part or full-time, or reported any hours or weeks of paid-work, in subsequent waves (2000-2008), then the respondent was coded as un-retired. Else, if in subsequent waves the respondent claimed retirement status, reported not working part or full-time, reported zero hours and zero weeks of paid-work, then the respondent was coded as retired (did not unretire).

Independent variables.

Socio-demographics

Age is calculated from the respondent's birthday and at the end of the interview date; it is used as a continuous variable in these analyses. Gender was coded as 0 for male and 1 for female. Race was originally 1 for White/Caucasian, 2 for Black/African American, and 3 for Other; and transformed into a dichotomous variable where Non-White = 1. All are treated as time invariant.

Economic resources

For purposes of this study, economic resources is a multidimensional construct that consists of assets, income, and protections (health insurance coverage via federal government and employer sponsored retiree health insurance).

Assets here are being operationalized with total household retirement wealth which is the sum value of primary residence, secondary residence, other real estate, net value of vehicles, businesses, IRA, Keogh accounts, stocks mutual funds and investment trusts, value of checking, savings, or money market accounts, value of CD, government savings bonds, and T-bills, values of bonds and bond funds, net value of all other savings minus the value of all mortgages and other debt[4]. This variable was transformed using the inverse hyperbolic sine function (ARSINH). ARSINH is a preferable method because it can deal with skewness, retain zero and negative values, and avoid stacking and disproportionately misrepresentation (Friedlinie, Masa & Chowa, 2012) and has been used in the literature of un-retirement (Maestas, 2010). Wealth was treated as time-variant.

[4] For purposes of this study, IRAs are included in total household assets because this variable has already been imputed and summed by the RAND Corporation.

It is possible that families could be asset rich with the ownership of a home or other materials but income poor in that they are unable to sell the assets and/or lack important financial instruments such as pensions or annuities that provide a steady stream of income. Thus, examining income sources is just as important as examining overall retirement wealth. Total household income is a global measure of respondents' Social Security Retirement income, spouse or widow benefits; income from Social Security Disability and Supplemental Security Income, income from unemployment and worker's compensation; wage/salary income, bonuses/overtime pay/commission/tips, 2nd job or military reserve earnings, professional practice or trade income; sum of household business or farm income, self-employment earnings, business income, gross rent, dividend and interest income, trust funds or royalties, and other asset income; income from all pensions and annuities, and income from Veteran's benefits, welfare, and food stamps as well as money from alimony other income and lump sums from insurance, pension and inheritance. A global measure of total income is preferred here because there are many forms of income and including each one as a separate factor in the model reduced the degrees of freedom and introduced issues of multicollinearity. While it can be argued that Social Security retirement income represents a major financial pillar to retirement and thus should be included as a separate factor in the model, preliminary analyses revealed that it was universal among this particular sample—unlike pensions where some had it and others did not—and Social Security retirement income was not significantly related to un-retirement as a single measure at the bivariate level (p=.0566) or multivariate level (p=.5490). Thus, a global measure of income was preferred. Income was log-transformed and treated as time-variant.

The presence of a pension was measured with the question, "Are you (or your husband/wife/partner) currently receiving an income from retirement pensions?" If yes, a

subsequent question asks: “Who receives that?” The RAND Corporation had given a value of (1=yes, presence of pension) and (0=no). This variable is treated as time-variant. The rationale for including the presence of pensions as a separate factor is because it represents a major financial instrument acquired earlier in life via employment for specific usage during retirement and points to specific policy recommendations with regard to economic resources in later life. The inclusion of total household net worth, income, and pension presence into multivariate analyses has been done by many (Cahill, et al. 2005, 2010; Munnell, 2008; Ozawa & Lum, 2005).

Protections is operationalized as coverage with health care insurance through the federal government and employer sponsored retiree health insurance. Government Health Insurance was measured with the question, “Are you currently covered by any federal government health insurance programs, such as Medicare, Medicaid, or CHAMPUS, VA, or other military programs?” If respondents answered yes, then they were coded as 1, otherwise no=0. This variable is treated as time-variant. Respondents reported specific sources of employer-provided health insurance for up to three plans. A respondent was coded as 1 if they indicated they were covered by a previous employer, union, or by their spouse’s current or previous employer. Otherwise, respondents were coded as 0 if they were not covered by any source of employer-provided health insurance. This variable is treated as time-variant. Both government health insurance and employer sponsored retiree health insurance have been included in multivariate analyses (Maestas, 2010).

Human capital

Education is measured in years and was used taken at baseline. Self-rated health was measured with the question “Would you say your health is excellent, very good, good, fair, or

poor?" and was reverse coded where (1=poor to 5=excellent). Self-rated health was used because it is widely used in the literature, it is very robust, and can better predict morbidity and mortality than standardized measures of health (Desalvo et al., 2006). Previous occupation and years of workforce attachment capture older adults' work experience and were taken at baseline. The seventeen occupational codes were dummy coded into occupations that require high skills (managerial specialty operations, professional specialty operator/technical support, sales), mid-range skills (clerical/administrative support, mechanics/repair, construction trade/extractors, precision production, operators of machine, transportation, handlers), and low-skills (service occupations such as cleaning, protection, food prep, personal service) (Autor, 2010); where low-skill occupations was used as the reference group. Respondents were asked "During the past four weeks, what have you been doing to find another job?" Respondents were coded as 1 if they answered "Attend school or received other training."[5]

Education, previous occupation and years of workforce attachment are treated as time invariant and taken at baseline. Health, additional schooling and training are treated as time-variant.

Social capital

Indicators to social capital were dichotomized. Marital status was coded as (1) for married/partnered; separated, divorced, widowed and never married were coded as (0). The rationale for such coded was informed my social capital theory—presumably people that were separated, divorced, widowed or never married did not have a significant other and lacked such a

[5] Other categories included (1) checking with public employment agency, (2) checked with private employment agency, (3) visited employers directly; interviewed; attended job fair, (4) telephoned or wrote employers directly; sent resumes; updated resume; filed application, (5) asked friends or relatives; word of mouth; networking, (6) placed or answered ads, (7) read ads, (8) didn't do anything specific, (11) started new business/already has new job, (12) go back to school/get training, (97) other. Note that 9-10 are missing from HRS.

social agent that may have had knowledge and information of jobs. For people who were married and whose spouse/partner was employed were coded as 1; otherwise coded as 0. Parenting a adult child/grandchild was coded as 1; otherwise 0. All items are treated as time-variant.

Other productive activities

Formal and informal volunteering were examined two ways: the presence of the role and the intensity. Formal volunteering was measured with the question, "Have you spent any time in the past 12 months doing volunteer work for religious, educational, health-related or other charitable organizations?" The respondent was coded as 1 if they replied yes. To capture intensity, the question was asked "Altogether, how many hours did you spend in the past 12 months doing volunteer work for such organizations?" and was recoded into three categories: none (zero hours), some (less than 100 hours) and a lot (100 hours or more). These cutoff points were informed by the coding of the HRS: respondents who reported that they did not know how many hours they volunteered per year, they were asked if they voted less or more than 100 hours. Formal volunteering is treated as time-variant. The group "none" was used as the reference group.

Informal volunteering was measured with the question "Altogether, about how many hours did you spend in the last 12 months helping friends, neighbors, or relatives who did not live with you and did not pay you for the help?" This one question was used in two ways. First, if respondents reported any hours then they were coded as (1) to measure the presence of the role. Second, this continuous variable was recoded into three categories: none (zero hours), some (less than 100 hours) and a lot (100 hours or more), to tap into intensity levels. Informal volunteering is treated as time-variant. The group "none" was used as the reference group.

Caring for a spouse (spousal care) was constructed using several variables. If respondents reported difficulty with activities of daily living (ADLs), then they are queried with "Who helps?" If their spouse was identified, then their spouse was coded as 1 for caregiver of spouse; otherwise coded as 0. Unfortunately the survey does not query the number of hours a spouse helped the respondent with ADLs; thus, intensity for spousal caregiving is unable to be captured.

Retirement Experience

Respondents were asked, "Thinking back to the time you (partly/completely) retired, was that something you wanted to do or something you felt you were forced into?" The variable was recoded where "chose to" = 1 and "forced into or part wanted, part forced" were coded as 0.

Retirement satisfaction was measured with the question, "All in all, would you say that your retirement has turned out to be very satisfying, moderately satisfying, or not at all satisfying?" to individuals who reported being completely retired. It was recoded where 'very satisfied' = 1 else moderately and not at all satisfied with 0. The rationale for this combination was to increase the cell size of "moderately" and "not at all satisfied". It was treated as time-variant.

Multicollinearity

Diagnostic procedures were conducted to examine issues of multicollinearity pertaining to household wealth and occupations. Procedures for each are discussed below.

Household Wealth

Theoretically, household wealth may be correlated with certain labor force as well as other factors in the model, which may pose an issue of multicollinearity. Pearson correlation analyses[6] revealed household wealth was related to age ($r = -.02$), gender ($r = -0.05$), race ($r = -0.11$), log-

[6] For illustrative purposes, the author is using PROC CORR to examine the bivariate relationships. See footnote number 7 for more details.

income (r=.40), employer sponsored retiree health insurance (r=.04), education (r=.22), self-rated health (r=.10), chose retirement (r=.07), and retirement satisfaction (r=.11). Household net worth was not related to pensions, government health insurance, or caregiving. Although the low correlation statistics do not suggest an issue of multicollinearity, researchers should be aware that correlations lower than .8 can be troublesome at the multivariate level (Cohen, Cohen, West, & Aiken, 2002; Fox, 1991; Morrow-Howell, 1994). Thus, total household net worth was regressed on age, gender, race, log-income, pension presence, covered by government health insurance, covered by employer sponsored retiree health insurance, education, self-rated health, occupations, marital status, employed spouse/partner, parenting, formal and informal volunteering, caregiving, chose retirement and retirement satisfaction to examine the shared variance and tolerance values. PROC REG[7] and respondent-level weights were applied. The model was significant, $F(19, 1981)=40.13$, $p<.0001$, and shared approximately 27% of variance with other factors (Adj. $R^2=.2710$). Overall, tolerance values were acceptable, with the lowest being .37 with high-skilled occupations, which is above the threshold of .25 (Fox, 1991). It was concluded that no transformations were necessary, such as residualizing household wealth.

Occupations

Theoretically, occupations may be highly correlated with certain demographic and labor force variables and other factors in the model. Occupations was transformed into a three level variable, where low-skilled = 1, mid-skilled=2, high-skilled = 3 and used with Pearson correlation. Bivariate results revealed occupations was related to gender (r=.03), race (r=.18), total household net worth (r=−.23), log-income (r= −.31), pension presence (r= −.10), employer

[7] PROC SURVEYREG should be applied into order to account for the complex structure of the data. However, SAS options such as "TOL" and "VIF" were not applicable with PROC SURVEYREG; meaning, the model did not run and SAS did not acknowledge these options. For illustrative purposes, the author chose to use PROC REG.

sponsored retiree health insurance ($r = -.10$), education ($r = -.47$), marital status ($r = -.10$), employed spouse/partner ($r = -.05$), formal volunteering ($r = -.12$), informal volunteering ($r = -.08$), chose retirement ($r = -.09$), and retirement satisfaction ($r = -.11$). Occupations was not related to age, government health insurance, parenting, caregiving. A further procedure was conducted in that occupations was regressed on the aforementioned variables to examine the shared variance (R^2) and tolerance values. The model was significant, $F(18, 1982)=35.98$, $p<.0001$. Occupations shared approximately 24% variance with the other factors (Adj. $R^2=.2394$). Overall, the lowest tolerance value was .47 (logincome) but still above the threshold of .25 (Fox, 1991). It was concluded that no transformations were necessary, such as residualizing occupations.

Methods of Analyses

Imputation

The Fully Conditional Specification (FCS) method (Brand, 1999; van Buuren, 2007) was used to complete all missing values of the study variables. FCS was preferred over Markov Chain Monte Carlo (MCMC) multiple imputation method because FCS does not assume multivariate normality but rather the existence of a joint distribution for all variables. Multiple imputation, which uses all the information available as well as a random component to fill in missing values, is recognized as a preferred technique for completing missing data (Little & Rubin, 2002). FCS is order-sensitive, and thus, the first block of variables entered into the multiple imputation process were people that did not have any missing values: which included age, gender, race, income, public and private health coverage, health, years of work experience, marital status, labor status of spouse, and parenting role. These variables helped to estimate the values for occupation (number missing=3,496; 42%) and retirement satisfaction (number

missing=2,242, 27%). This technique created ten independent data sets with no missing data. Household wealth was retained in the dataset but excluded from the multiple imputation process for two reasons. First, the RAND Corporation had already imputed all missing values for this variable. Second, this variable enabled me to maximize the list-wise deletion feature of regression. Meaning, the multiple imputation procedure had imputed values for the dead. However, because household wealth was already fully imputed, the cases in which there were no values (meaning the dead) resulted in list-wise deletion of people who died in their respective waves. Thus, while the imputation process had given values for the dead on all other variables, the list-wise deletion process excluded the cases that had a missing value on the wealth variable and thus the dead were censored and not used in the competing risk evaluation.

Instead of filling in a single value for each missing value, Rubin's (1976; 1987) multiple imputation strategy replaces each missing value with a set of plausible values that represent the uncertainty about the right value to impute. PROC MIANALYZE rolled up the parameter estimates and covariance matrix for each imputed dataset and derived valid univariate and multivariate inferences for these parameters (SAS Support, n.d.). While PROC MIANALYZE provided statistics for the parameter estimate as well as the unadjusted lower and upper bound confidence limits, it did not provided the rolled-up statistics for the hazard rates or the adjusted 95% confidence limits. With the assistance of Ed Spitznagel, I simply took the exponent of the parameter estimate and of the lower and upper bound confidence limits (to calculate standard errors) to obtain the rolled-up statistics.

Time invariant and variant variables

The independent variables used in this analysis are of two types: (1) people that are time-invariant (e.g. gender, ethnicity) or (2) time-variant (e.g., health, marital status, wealth,

retirement satisfaction). Appendix A specifies which variables were used as time-variant/invariant.

Survival analysis was used to test the hypotheses associated with questions 1, 2, and 3. Survival analysis is the preferred statistical tool because it is used to study the occurrence and timing of events, and it identifies significant covariates associated with the risk of the event occurring (Allison, 1995). Survival analysis is appropriate for this investigation because of the focus of a status change from fully retired to unretired and the factors associated with such an event. Survival analysis yields the parameter estimates, standard error, statistical tests and probabilities, as well as the risk ratios associated with the independent variables.

The Cox proportional hazard model (Allison, 1995; Cox, 1984) was used to estimate the effects of independent variables on the hazards of un-retirement. Cox regression tends to be very robust in that no parametric assumptions are made (Allison, 1995). One critical assumption, however, is that the hazards are proportional over time, that is, the ratio of hazards are to be constant over the survival time. Survival curves are reasonably parallel—there are no extreme cases of the survival curves crossing (available upon request).

Question 1. How do economic resources (wealth, income, pension coverage, health insurance), human capital (education, health, work experience, life-time occupation, additional schooling/training) and social capital (marital status, working spouse, parenting an adult child/grandchild) relate to un-retirement?

The parameter estimates on the wealth variable reveal the direction of that relationship. The first, second, third and fourth hypotheses are supported if parameter estimates indicate a negative

beta for income, pension, Medicare coverage, and employer sponsored retiree health insurance. The fifth and sixth hypotheses are supported if parameter estimates indicate that higher levels of human capital (better health, more education, occupations, obtaining additional schooling and/or job training) and social capital (married, married to an employed spouse, parenting) are related to un-retirement.

Question 2. How do other productive activities, including volunteering and caregiving, relate to un-retirement?

Again survival analysis was used but the focus is now on productive activities (formal and informal volunteering; caregiving to a parent/parent-in law, caregiving to a spouse) in relation to un-retirement. I will use the findings from the first question to incorporate significant variables as controls in order to isolate the effects of productive activities on un-retirement. In the literature, it is possible that productive activities from prior periods as well as concurrent periods can affect un-retirement.

To test the hypotheses about concurrent volunteering and un-retirement, a dummy variable consisting of no volunteering, some volunteering, a lot of volunteering, will be used to test its association with workforce status. This information is coming from the same observation period (compete). The hypothesis will be supported if lower levels of volunteering are related to un-retirement. To test the effects of prior volunteering on un-retirement, volunteer participation at the prior wave will be used as the independent variable and I will examine its association with un-retirement (complement). Findings will yield information about volunteering and its relation with workforce participation in later life.

To test the hypotheses about concurrent caregiving and un-retirement, a categorical variable reflecting being a caregiving or providing care will be used as dummy variables in the model. This information is coming from the previous (lagged) and same wave. The hypothesis will be supported if caregiving is negatively associated with un-retirement (compete).

Question 3. How does the retirement experience, including forced retirement and retirement satisfaction, relate to un-retirement in later life?

A hierarchical regression approach (Cohen & Cohen, 1983) will be utilized in that all significant independent variables from socio-demographics, economic resources, human and social capital, and productive activities associated with un-retirement will be first included in the model; all factors were taken at baseline, 1998, given that forced retirement happened before 1998. I will then enter reasons for retirement in a second block to examine the change in parameter estimates. Among the reasons to retire, the hypothesis will be supported if forced retirement is positively associated with un-retirement.

With regard to retirement satisfaction, I performed a separate hierarchical regression analysis because it is time-variant. The significant independent variables will be time-variant (prior wave related to un-retirement) and retirement satisfaction will also be from the prior wave to un-retirement. The hypothesis on retirement satisfaction will be supported if retirement satisfaction is negatively associated with un-retirement.

IV. Results

Univariate (Tables 1 and 2, page 53-57)

Sociodemographics.

The average age at baseline was 74 (range 62-102, *SD*=7.37). Individuals were born between 1895 and 1936 and comprised mostly of Children of the Depression who are generally known to be savers due to their experience of the Great Depression. More than half (53.75%) were female. Most (88.52%) of the sample were white, followed by black (8.69%) and other (2.76%).

Economic resources.

The median amount of total household net worth at baseline was $142,925 (average: $295,783; range −$1,000,000-$31,258,000; *SD*=676,790). Median total household net worth increased to $215,000 over the observation period. The median amount of total household retirement income was $23,360 in 1998 and increased to $27,120 over the ten year period. Slightly over half (53%) did not have a pension from an employer and this figure remained slightly the same to 54% in 2008. As would be expected, most (91%) were covered by a federal government health insurance program, such as Medicare, at baseline and this coverage became nearly universal over the observation period. Approximately 37% had an additional insurance which was sponsored by a previous employer at baseline, and that there was an increase to 53% by 2008. Interestingly, the percentage rose to a high of 65% and then dropped to 53%.

Human capital.

On average, respondents had a high school education (range 0-17 years; *SD*=3.48). Respondents had an average of 22.89 years of work experience (range 0-72.5; *SD*=11.96). Occupations with the highest concentration were clerical/administrative (17%), professional

specialty operator/technical (16%), managerial specialty operator (13%) followed by other occupations (not shown in table). The seventeen occupational codes were trichotomized into three groups; where most had a mid-skilled occupation over their lifetimes (49%), followed by high-skilled (34%), and low-skilled (16%). Only one (1) respondent over the course of ten years reported to have attended school or received other training.

Social capital.

About three-fifths (57%) were married or partnered. Approximately one out of ten (10%) had a spouse/partner who worked at baseline and this declined to approximately two percent by the end of the observation period. Approximately a fifth (22%) were actively parenting an adult child or grandchild at baseline and this declined to less than one percent (0.34%) by 2008.

Productive Activities.

A little less than a third (29%) reported to volunteer formally at baseline; this declined slightly to 26% by the end of the observation period. A little more than half (53%) informally volunteered at baseline and this precipitously declined to 33% by 2008. Approximately five percent (5%) of respondents helped a spouse with ADLs at baseline and this dropped to one percent (1%) by 2008.

Retirement experience.

Respondents were mostly satisfied with retirement. A little less than two thirds (58%) reported to be satisfied in retirement at baseline and this remained the same until the end of the observation period. Most (67%) wanted to retire, some (7%) reported that they partly wanted and partly were forced into retirement, while the rest (26%) were forced into retirement.

Table 1. Sample baseline (1998), with person-level weights (N=8,334)

Variable	Percentage	Mean (range, *SD*)
Age		73.92 (62-102; 7.37)
Sex		
Female	53.75%	
Race		
White	88.52%	
Black	8.69%	
Non-white/black	2.76%	
Economic resources		
Total Household Net Worth (Including 2nd home)		295,783 (-1,000,000-31,258,000; 644,800)
Median		142,925
Mode		0
Total HH Income		33,265 (0-1,367,591; 40,396)
Median		23,360
Mode		6,000
Pension presence		
No	53%	
Yes	47%	
Covered by federal government health insurance program		
No	9%	
Yes	91%	
Number of employer provided health insurance plans		
0	63%	
1+	37%	
Human Capital		
Education (years)		11.74 (0-17; 3.48)
Self-rated health (poor=1, excellent=5)		2.92 (1-5; 1.16)

Table 1. Sample baseline (1998), with person-level weights (N=8,334)

Variable	Percentage	Mean (range, *SD*)
Longest held occupation		
High-skilled	34%	
Mid-skilled	49%	
Low-skilled	16%	
Social Capital		
Marital Status		
Married/partnered	57%	
Single (widowed, divorced, never married, separated, other)	43%	
Work status partner		
Not working	90%	
Working	10%	
Parenting		
No	79%	
Yes	21%	
Productive Activities		
Formal volunteer		
Yes	29%	
Informal volunteer		
Yes	53%	
Caregiver (help spouse with ADLs)		
Yes	5%	
Retirement Experience		
Retirement Satisfaction (Satisfied=1)	58%	
Reasons for retirement		
Wanted to retire	67%	
Forced to retire	26%	
Partly wanted/forced	7%	

Table 2. Time-variant factors with person level weights

Variable	1998 n=8,334	2000 n=7,044	2002 n=6,015	2004 n=5,167	2006 n=4,420	2008 n=3,755
Economic resources						
Total Household Net Worth, Including 2nd home	295,783 (-1,000,000-31,258,000)	338,775 (-160,010-12,589,500)	343,865 (-480,865-33,447,000)	387,735 (-499,000-40,800,000)	464,741 (-105,800-34,219,734)	488,719 (-400,000-32,292,500)
Median	142,925	160,000	170,000	184,370	210,000	215,000
Mode	0	0	0	0	0	0
Total Household Income	33,265 (0-1,367,591; 2,359,411)	34,373 (0-1,197,704; 23,902,210)	34,514 (0-1478439; 2664843)	36,802 (0-2,761,657; 4,048,505)	36,924 (0-1,954,020; 2,695,899)	40,366 (0-2,061,151; 3,389,108)
Median	23,360	23,472	24,508	24,521	26,400	27,120
Mode	6,000	8,400	12,000	9,600	9,600	12,000
Pension Presence						
No	53%	50%	51%	52%	52%	54%
Yes	47%	50%	49%	48%	48%	46%
Covered by federal government health insurance program						
No	9%	4%	1%	1%	1%	1%
Yes	91%	96%	99%	99%	99%	99%
Number of employer provided health insurance plans						
0	63%	64%	35%	34%	43%	47%
1 +	37%	36%	65%	63%	57%	53%
Human Capital						

Table 2. Time-variant factors with person level weights

Variable	1998 n=8,334	2000 n=7,044	2002 n=6,015	2004 n=5,167	2006 n=4,420	2008 n=3,755
Self-rated health, mean (*SD*) 1=poor, 5=excellent	2.92 (1.15)	2.99 (1.13)	2.93 (1.13)	2.91 (1.12)	2.88 (1.13)	2.87 (1.11)
Attended school or received other training (Yes)	0	0	0	0	1	0
Social Capital						
Marital Status						
Married/partnered	57%	54%	52%	50%	48%	46%
Single (widowed, divorced, never married, separated, other)	42%	45%	47%	49%	51%	53%
Work status partner						
Not working	90%	93%	95%	96%	97%	98%
Working	10%	7%	5%	4%	3%	2%
Parenting						
No	78%	84%	88%	91%	99%	99.66%
Yes	22%	16%	12%	9%	1%	0.34%

Table 2. Time-variant factors with person level weights

Variable	1998 n=8,334	2000 n=7,044	2002 n=6,015	2004 n=5,167	2006 n=4,420	2008 n=3,755
Productive Activities						
Formal volunteer (role)						
No	71%	70%	70%	71%	72%	74%
Yes	29%	30%	30%	29%	28%	26%
Formal volunteer (intensity)						
None (0 hours)	71%	70%	70%	71%	72%	74%
Some (<100 hours)	17%	17%	15%	17%	18%	16%
A lot (100+ hours)	13%	13%	15%	11%	10%	10%
Informal volunteer (role)						
No	47%	51%	67%	63%	63%	67%
Yes	53%	49%	33%	37%	37%	33%
Informal volunteer (intensity)						
None (0 hours)	47%	51%	67%	63%	63%	67%
Some (<100 hours)	37%	35%	24%	31%	31%	28%
A lot (100+ hours)	15%	14%	9%	6%	6%	5%
Caregiver to spouse						
No	95%	96%	98%	99%	99%	99%
Yes	5%	4%	2%	1%	1%	1%
Retirement Experience						
R's retirement Satisfaction (Satisfied = 1)	58%	57%	64%	59%	58%	59%

Baseline weights are applied to percentages and averages

Bivariate Results (Table 3, Page 62)

Socio-demographics.

Age was negatively associated with un-retirement ($p<.0001$, HR:0.87). Gender was significantly associated with un-retirement ($p<.0009$, HR:0.74), where, over a short time interval in the future, the probability of a woman returning to work is 26% less than that of a man returning to work. Race was insignificant ($p=.9704$), suggesting that non-whites were just as likely to return to work as whites.

Economic resources.

Total household net worth was insignificantly related to un-retirement ($p=.4557$), suggesting there was no difference per unit change in the probability of returning to work. Total household income was positively associated with un-retirement ($p=.0004$, HR:1.34), suggesting that the probability of returning to work increased by 34% for every unit change in log-income over a short time interval in the future. Pension presence was insignificant, $p=.1618$. Federal health insurance was negatively associated with un-retirement ($p<.0001$, HR:0.38), where people with coverage were 62% less likely to return to work. The presence of employer sponsored retiree health insurance was insignificant, $p=.8079$.

Human capital.

Education was trending towards significant ($p=.0576$). Health was significantly and positively related to un-retirement, $p<.0001$, HR:1.37. This suggests that the probability of returning to work increased by 37% for every one unit increase in self-rated health. Occupations were insignificantly related to un-retirement, where high-skilled workers were just as likely to return to work as low-skilled workers at the bivariate level, $p=.7884$. A similar finding is suggested with mid-skilled workers, $p=.8673$.

Social capital.

All of the social capital indicators were significantly associated with un-retirement at the bivariate level. Marital status was significantly related to un-retirement, where people who were married were 75% more likely to return to work when compared to people who were not married, $p<.0001$, HR:1.75. Being married to a spouse/partner that worked significantly increased the probability of returning to work, $p<.0001$, HR:2.93. The probability of returning to work was greater for people who had dependent children, where they are 97% more likely to return to work when compared to people without dependent children, $p<.0001$, HR:1.97.

Productive activities.

Other productive activities, namely formal and informal volunteering and caregiving, were statistically significant and had very high hazard ratios. This is true whether these activities were examined prospectively or concurrently. For example, when the data are examined prospectively, parameter estimates reveal that formal volunteering doubled the probability of unretiring in the subsequent wave; $p<.0001$, HR:2.12. Informal volunteering also substantially increased the probability to return to work in the subsequent wave; $p<.0001$, HR:2.54.

When the data are examined cross-sectionally, parameter estimates reveal that formal and informal volunteering also complement paid-work. For example, formally volunteering is positively associated with un-retirement, $p<.0001$, HR:2.06. This suggests that people who formally volunteer are twice as likely to also become unretired. When compared to non-volunteers, people who volunteer less than 100 hours or more than 100 hours per year have higher probabilities of returning to work; $p<.0001$, HR:2.01 and $p<.0001$, HR:2.21, respectively. This suggests that people who volunteered more than 100 hours per year were twice as likely to return to work when compared to non-volunteers. Informally volunteering also appears to

complement paid-work, where people who help friends and family are twice as likely to return to work; $p<.0001$, 2.20. When compared to non-volunteers, people who helped friends and family less than 100 hours or more than 100 hours have higher probabilities of returning to work; $p<.0001$, 2.15 and $p=.0323$, HR:2.03. This suggests that people who informally volunteered a lot were twice as likely to unretired when compared to non-informal volunteers.

Providing care to a spouse who has difficulty with activities of daily living (ADLs) was significantly related to un-retirement. Specifically, when the activity is examined prospectively, the probability of caregivers returning to work in the subsequent wave were 88% lower for caregivers ($p<.0001$, HR:0.12). When examined concurrently, caregivers are about 72% less likely to return to work ($p<.0001$, HR:0.28).

Retirement experience.

There was no difference between people who chose to retire versus people who were partly or forced to retire ($p=0.0674$), although the statistic was approaching significance. Similarly, there was no difference between people who were satisfied or unsatisfied with retirement ($p=.8049$).

Table 3. Bivariate Results

	Hazard Ratio	Pr>|t|
Socio-demographics		
Age	0.87	<.0001
Female (1)	0.74	0.0009
Non-White	1.00	0.9704
Economic Resources		
Total household net worth	1.00	0.4557
Log total household income	1.34	0.0004
Pension presence (1)	1.00	0.1618
Government sponsored health insurance (1)	0.38	<.0001
Employer sponsored retiree health insurance (1)	1.00	0.8079
Human Capital		
Education (years)	1.00	0.0576
Self-rated health	1.37	<.0001
High-skill occupation (reference = low-skill)	1.00	0.7884
Medium-skill occupation (reference = low-skill)	1.00	0.8673
Social Capital		
Married (1)	1.75	<.0001
Working spouse (1)	2.93	<.0001
Parenting	1.97	<.0001
Productive Activities		
(LAG)		
Formal volunteer (role; yes=1)	2.12	<.0001
Formal volunteer (intensity)		
Some (reference = did not volunteer)	1.96	<.0001
A lot (reference = did not volunteer)	2.28	<.0001
Informal volunteer (role; yes=1)	2.54	<.0001
Informal volunteer (intensity)		
Some (reference = did not informally volunteer)	2.16	<.0001
A lot (reference = did not informally volunteer)	2.75	<.0001
Caregiver to spouse (role; yes=1)	0.12	<.0001
(CONCURRENT)		
Formal volunteer (role; yes=1)	2.06	<.0001
Formal volunteer (intensity)		
Some (reference = did not volunteer)	2.01	<.0001
A lot (reference = did not volunteer)	2.21	<.0001
Informal volunteer (role; yes=1)	2.20	<.0001
Informal volunteer (intensity)		
Some (reference = did not informally volunteer)	2.15	<.0001
A lot (reference = did not informally volunteer)	2.03	0.0323
Caregiver to spouse (role; yes=1)	0.28	<.0001
Retirement experience		
Retirement satisfaction	1.00	0.8049
Chose to retire (reference = forced/partly forced)	1.00	0.0674

Multivariate Results

Model I (Table 4, page 64) reveals parameter estimates on the first research question: how do economic resources, as well as human and social capital, relate to un-retirement. Multivariate results provide clarity on the relationship between wealth and income in relation to un-retirement. Multivariate results suggests that hypothesis 1.1 (income) is not supported, while hypotheses 1.2 (pension) and 1.4 (retiree health insurance) are fully supported; and hypotheses 1.5 (human capital) and 1.6 (social capital) are partially supported.

Socio-demographic characteristics, namely age ($p<.0001$, HR:0.87, CL:0.86-0.89) and gender ($p=.0074$, HR:0.76, CL:0.63-0.93) were significantly related to un-retirement. The parameter estimates suggest that with each year increase in age, the probability of returning to work is reduced by 13%. Similar to bivariate results, the probability of women returning to work were reduced by about 24% when compared to men over a short time interval in the future. Race was not related to un-retirement while controlling for other covariates ($p=0.7370$), meaning, non-Whites were just as likely to return to work as Whites while controlling for other covariates.

Multivariate statistics for all models (Models I-VIII) suggest that household wealth or income were not significantly related to un-retirement, while controlling for other covariates. However, other economic resources as well as certain dimensions of human and social capital were significantly related to un-retirement. Specifically, the probability of returning to work were 22% lower for people with a pension, when compared to those without a pension, while controlling for other covariates ($p<.05$, HR:0.78, CL:0.63-0.97). In other words, people without a pension are more likely to return to work. When compared to people without employer sponsored retiree health insurance, the probability of returning to work were 23% lower for people with such coverage, while controlling for other covariates ($p<.05$, HR:0.77, CL:0.62-

0.95). Government health coverage was not significantly related to un-retirement, p=.1342, meaning people with or without such coverage were just as likely to return to work or remain retired.

Certain dimensions of human capital were significantly related to un-retirement when examined in this model. Self-rated health was positively and strongly related to un-retirement in all multivariate models. In Model I, parameter estimates suggest that the probability of returning to work in the subsequent wave increased by 31% for every unit increase in self-rated health, p<.0001, HR:1.31, CL:1.20-1.44. In addition, individuals who have had lifetime careers in high- or mid-skilled occupations were 82% and 57% more likely to return to work when compared to low-skilled occupations; p<.0042, HR:1.82, CL:1.20-2.75 and p<.0187, HR:1.57, CL:1.07-2.28, respectively. Education was not significantly related to un-retirement in this model, p=0.1971.

Certain dimensions of social capital were also significantly related to un-retirement. Being married to a spouse or partner who was employed was positively and strongly related to returning to the labor force, p<.0001, HR:1.75, CL:1.36-2.23. This suggests that the probability increased by 75% for people who were married to a spouse/partner who is employed. Further, active parenting either an adult child or grandchild was positively related to returning to work, p=.0200, HR 1.28, CL:1.03-1.58; which means that parenting increased the probability of un-retirement by 28%. Marital status was not related to un-retirement, p=0.0748.

Table 4. Un-retirement and its relation with economic resources, and human and social capital

	Model I		
	Hazard Ratio	**Pr>|t|**	**95% Confidence Limits**
Socio-demographics			
Age	0.87	<.0001	0.86-0.89
Female (1)	0.76	0.0074	0.63-0.93
Non-White (1)	0.95	0.7370	0.71-1.26
Economic Resources			
Total household net worth	1.00	0.7323	1.00-1.00
Log total household income	1.11	0.1937	0.94-1.31
Pension presence (1)	0.78	0.0275	0.63-0.97
Covered with government health insurance (1)	1.26	0.1342	0.93-1.71
Covered with employer-retiree health insurance (1)	0.77	0.0150	0.62-0.95
Human Capital			
Education (years)	0.97	0.1971	0.94-1.01
Self-rated health	1.31	<.0001	1.20-1.44
High-skill occupation[1]	1.82	0.0042	1.20-2.75
Medium-skill occupation[1]	1.57	0.0187	1.07-2.28
Social Capital			
Married (1)	0.79	0.0748	0.61-1.02
Working spouse (1)	1.75	<.0001	1.36-2.23
Parenting (1)	1.28	0.0200	1.03-1.58

Event n=501, Event with missing n=0, Censored=7,552

[1] reference group = low-skill

Models II and III reveals parameter estimates for formal and informal volunteering (Research Question 2, Table 5, page 66). Overall, multivariate results suggest that productive activities compete and complement each other and the relationship depends on the activity but not necessarily intensity. Hypotheses 2.1 (volunteering is positively associated with un-retirement) is partially supported; whereas 2.2 (caregiving is negatively associated with un-retirement, that is, caregiving is a barrier to paid-work) is fully supported.

Overall, formal and informal volunteering were strongly and positively related to un-retirement. And this pattern is consistent when examined by the presence of the role (yes/no) or

intensity (no activity, some activity, a lot of activity). Moreover, this pattern is consistent when examined prospectively (Models II and III) or cross-sectionally (Models IV and V).

When the data are examined prospectively—meaning, the role of formal and informal volunteering were lagged—Model II suggests that these other productive roles were positively related to un-retirement; $p<.0001$, HR:1.58, CL:1.28-1.94 and $p<.0008$, HR:1.49, CL:1.18-1.88, respectively. These data suggest that people who formally volunteered were 58% more likely to unretire in subsequent waves when compared to people who did not volunteer, while controlling for other covariates. Informal volunteers were 49% more likely to unretire in subsequent waves when compared to people who did not informally volunteer, while controlling for other covariates. Model III reveals a similar pattern, where people who engaged in some formal volunteering ($p<.0011$, HR:1.50, CL:1.17-1.92), a lot of formal volunteering ($p<.0001$, HR:1.66, CL:1.29-2.14), or some informal volunteering ($p<.0058$, HR:1.41, CL:1.10-1.81) and a lot of informal volunteering ($p<.0004$, HR: 1.68, CL:1.26-2.33) were all more likely to return to work in subsequent waves when compared to people who did not engage in any type of volunteer activity, while controlling for other covariates. Model III also suggests that people who engage in a lot of formal or informal volunteering had the highest probabilities of returning to work: 66% and 68%.

Table 5. Un-retirement and its relation with formal and informal volunteering, presence of role and intensity, lagged

	Model II			Model III		
Variable	**Hazard Ratio**	**Pr>|t|**	**95% Confidence Limits**	**Hazard Ratio**	**Pr>|t|**	**95% Confidence Limits**
Socio-demographics						
Age	0.88	<.0001	0.86-0.89	0.88	<.0001	0.86-0.89
Female (1)	0.75	<.0051	0.62-0.91	0.75	0.0045	0.61-0.91
Non-White (1)	0.93	0.6424	0.69-1.24	0.93	0.6255	0.69-1.24
Economic resources						
Total household net worth	1.00	0.6418	1.00-1.00	1.00	0.6730	1.00-1.00
Total household income (log)	1.09	0.3008	0.92-1.28	1.08	0.3099	0.92-1.28
Pension presence (1)	0.77	0.0157	0.62-0.95	0.77	0.0154	0.62-0.95
Covered with government health insurance (1)	1.25	0.1407	0.92-1.71	1.26	0.1379	0.92-1.71
Covered with employer-retiree health insurance (1)	0.76	0.0121	0.62-0.94	0.76	0.0118	0.62-0.94
Human Capital						
Education (years)	0.96	0.0363	0.93-0.99	0.96	0.0301	0.92-0.99
Self-rated health	1.24	<.0001	1.13-1.37	1.24	<.0001	1.13-1.37
High-skill occupations[1]	1.77	0.0052	1.18-2.66	1.77	0.0055	1.18-2.65
Mid-skill occupations[1]	1.59	0.013	1.10-2.30	1.59	0.0133	1.10-2.29
Social Capital						
Marital status (1)	0.78	0.0609	0.60-1.01	0.79	0.0714	0.61-1.02
Working spouse (1)	1.75	<.0001	1.37-2.23	1.75	<.0001	1.29-2.14
Parenting (1)	1.22	0.0635	0.98-1.50	1.20	0.0865	0.97-1.48
Productive Activities (Role)						
Formal volunteering (1)	1.58	<.0001	1.28-1.94			
Informal volunteering (1)	1.49	0.0008	1.18-1.88			
Productive Activities (Intensity)						
Some formal volunteering[2]				1.50	0.0011	1.17-1.92
A lot of formal volunteering[2]				1.66	<.0001	1.29-2.14
Some informal volunteering[3]				1.41	0.0058	1.10-1.81
A lot of informal volunteering[3]				1.68	0.0004	1.26-2.23

Model II and III: Event n=501, Event with missing n=0, Censored n=7,552

[1] reference group = low-skill

[2] reference group = no formal volunteering

[3] reference group = no informal volunteering

Models IV and V (Table 6, page, 66) examine the role and intensity of formal and informal volunteering cross-sectionally—meaning, un-retirement and formal and informal volunteering were examined at the same wave. Interestingly, the patterns are very similar to those described above when the data are examined prospectively in that the role as well as intensity levels appear not to compete with un-retirement but rather complement going back to work. Important to note here is the hazard ratio—none of the models suggests that volunteering competes with work, meaning that all hazard ratios were 1.+.

Model IV suggests that the role of formal and informal volunteering complements un-retirement when examined concurrently, $p<.0013$, HR: 1.53, CL:1.19-1.98 and $p<.0077$, HR: 1.42. CL:1.09-1.83. In this particular model, the probabilities of returning to work were 53% and 42% higher when compared to people who did not engage in any volunteer activity, while controlling for other covariates.

Overall, Model V suggests that intensity levels of volunteering—either formally or informally—do not compete with un-retirement when examined concurrently. Specifically, Model V suggests that people who engage in some or a lot of formal volunteering are more likely to unretire by 45% and 62%, while controlling for other covariates; $p<.0117$, HR: 1.45, CL:1.08-1.94 and $p<.0027$, HR: 1.62, CL:1.18-2.23, respectively. Some informal volunteers were 51% more likely to return to work, $p<.0018$, HR: 1.51, CL:1.17-1.97. There does not appear to be any difference between people who engage in a lot of informal volunteering and people who did not volunteer, $p=.1397$.

Table 6. Un-retirement and its relation with formal and informal volunteering; presence of role and intensity, concurrent

	Model IV			Model V		
Variable	Hazard Ratio	Pr>|t|	95% Confidence Limits	Hazard Ratio	Pr>|t|	95% Confidence Limits
Socio-demographics						
Age	0.88	<.0001	0.86-0.89	0.88	<.0001	0.86-0.90
Female (1)	0.76	0.0067	0.62-0.92	0.76	0.0075	0.62-0.93
Non-White (1)	0.93	0.7563	0.70-1.25	0.93	0.6625	0.70-1.25
Economic resources						
Total household net worth	1.00	0.6435	1.00-1.00	1.00	0.6568	1.00-1.00
Total household income (log)	1.09	0.2771	0.92-1.28	1.09	0.2897	0.92-1.28
Pension presence (1)	0.77	0.0166	0.62-0.95	0.77	0.0160	0.62-0.95
Covered with government health insurance (1)	1.24	0.1645	0.91-1.69	1.24	0.1599	0.91-1.69
Covered with employer-retiree health insurance (1)	0.76	0.0093	0.61-0.93	0.75	0.0089	0.61-0.93
Human Capital						
Education (years)	0.96	0.0469	0.93-0.99	0.96	0.0430	0.93-0.99
Self-rated health	1.26	<.0001	1.15-1.39	1.26	<.0001	1.14-1.38
High-skill occupations[1]	1.77	0.0052	1.18-2.65	1.76	0.0059	1.17-2.63
Mid-skill occupations[1]	1.60	0.0117	1.11-2.31	1.59	0.0125	1.10-2.30
Social Capital						
Marital status (1)	0.78	0.0574	0.60-1.00	0.78	0.0569	0.60-1.00
Working spouse (1)	1.75	<.0001	1.36-2.24	1.76	<.0001	1.37-2.24
Parenting (1)	1.24	0.0442	1.00-1.53	1.24	0.0435	1.01-1.53
Productive Activities (role)						
Formal volunteering (1)	1.53	0.0013	1.19-1.98			
Informal volunteering (1)	1.42	0.0077	1.09-1.83			
Productive Activities (intensity)						
Some formal volunteering[2]				1.45	0.0117	1.08-1.94
A lot of formal volunteering[2]				1.62	0.0027	1.18-2.23
Some informal volunteering[3]				1.51	0.0018	1.17-1.97
A lot of informal volunteering[3]				1.38	0.1397	0.89-2.13

Model IV and Model V: Event n=501, Event with missing = 0, Censored n=7,552

[1] reference group = low-skilled occupations

[2] reference group = no formal volunteering

[3] reference group = no informal volunteering

Models VI and VII (Table 7) examine the role of providing care to a spouse. Generally the relationship between caregiving and un-retirement are competitive. Meaning, providing care to a spouse in previous waves reduced the likelihood of returning to work in the subsequent wave

by 80%, while controlling for other covariates in the model, $p<0.01$, HR: 0.20, CL:0.06-0.60. The two roles retain their competitive nature when examined concurrently; $p.<.05$, HR: 0.40, CL:0.17-0.95; this suggests that caregivers are approximately 60% less likely to work within the same observation period when compared to non-caregivers, while controlling for other covariates.

Table 7. Un-retirement and its relation with caregiving to a spouse, lagged (Model VI) and concurrent (Model VII)

	Model VI (lagged)			Model VII (concurrent)		
Variable	**Hazard Ratio**	**Pr>|t|**	**95% Confidence Limits**	**Hazard Ratio**	**Pr>|t|**	**95% Confidence Limits**
Socio-demographics						
Age	0.88	<.0001	0.86-0.90	0.88	<.0001	0.86-0.89
Female (1)	0.75	0.0052	0.62-0.92	0.75	0.0050	0.62-0.91
Non-White (1)	0.94	0.6767	0.70-1.25	0.93	0.6674	0.70-1.25
Economic resources						
Total household net worth	1.00	0.6202	1.00-1.00	1.00	0.6220	1.00-1.00
Total household income (log)	1.08	0.3046	0.92-1.28	1.09	0.2941	0.92-1.28
Pension presence (1)	0.76	0.0148	0.62-0.94	0.76	0.0142	0.62-0.94
Covered with government health insurance (1)	1.26	0.1302	0.93-1.72	1.26	0.1292	0.93-1.72
Covered with employer-retiree health insurance (1)	0.76	0.0116	0.62-0.94	0.76	0.0121	0.62-0.94
Human Capital						
Education (years)	0.96	0.0375	0.93-0.99	0.96	0.0391	0.93-0.99
Self-rated health	1.22	<.0001	1.11-1.34	1.23	<.0001	1.12-1.35
High-skill occupations[1]	1.78	0.0048	1.19-2.67	1.77	0.0052	1.18-2.65
Mid-skill occupations[1]	1.59	0.0130	1.10-2.29	1.58	0.0135	1.10-2.29
Social Capital						
Marital status (1)	0.81	0.1234	0.63-1.05	0.80	0.0972	0.62-1.03
Working spouse (1)	1.73	<.0001	1.35-2.21	1.74	<.0001	1.36-2.22
Parenting (1)	1.21	0.0645	0.98-1.50	1.21	0.0662	0.98-1.50
Productive Activities (role)						
Formal volunteering (1)	1.57	<.0001	1.28-1.93	1.57	<.0001	1.28-1.93
Informal volunteering (1)	1.46	0.0013	1.16-1.84	1.48	0.0010	1.17-1.86
Caregiving (1)	0.20	0.0043	0.06-0.60	0.40	0.0377	0.17-0.95

Model VI and Model VII: Event n=501, Event with missing = 0, Censored n=7,552

[1] reference group = low-skill

Hypotheses 3.1 (forced retirement is positively related to un-retirement) or 3.2 (retirement satisfaction is negatively associated with un-retirement) are not supported. Model VIII (Table 8) suggests that retirees who chose to retire, as well as people who are generally dissatisfied with retirement, are just as likely to return to work than people who are forced or are satisfied with retirement, p=0.2023and p=.2270, respectively, while controlling for other covariates.

Table 8. Un-retirement and its relation with forced retirement and retirement satisfaction

	Model VIII		
Variable	**Hazard Ratio**	**Pr>|t|**	**95% Confidence Limits**
Socio-demographics			
Age	0.88	<.0001	0.86-0.89
Female (1)	0.76	0.0068	0.62-0.92
Non-White (1)	0.91	0.5687	0.68-1.23
Economic resources			
Total household net worth	1.00	0.6454	1.00-1.00
Total household income (log)	1.10	0.2380	0.93-1.30
Pension presence (1)	0.78	0.0219	0.63-0.96
Covered with government health insurance (1)	1.26	0.1341	0.92-1.73
Covered with employer-retiree health insurance (1)	0.76	0.0118	0.62-0.94
Human Capital			
Education (years)	0.96	0.0529	0.93-1.00
Self-rated health	1.27	<.0001	1.14-1.40
High-skill occupations[1]	1.76	0.0060	1.17-2.64
Mid-skill occupations[1]	1.61	0.0118	1.11-2.33
Social Capital			
Married (1)	0.80	0.1051	0.62-1.04
Working spouse (1)	1.72	<.0001	1.34-2.20
Parenting (1)	1.24	0.0452	1.00-1.53
Productive Activities (role)			
Formal volunteering (1)	1.51	0.0019	1.17-1.96
Informal volunteering (1)	1.38	0.0234	1.04-1.83
Caregiver (1)	0.44	0.0625	0.18-1.04
Retirement Experience			
Chose retirement (1)	1.30	0.2023	0.85-2.00
Very satisfied with retirement (1)	0.78	0.2270	0.53-1.17

Model VIII: Event n=501, Event with missing= 0, Censored=7,552

[1] reference group = low-skill

Table 9. Summary of hypotheses

Hypothesis No.	Hypothesis	Degree of Support
1.1	Income is negatively associated with un-retirement	Not supported
1.2	Pension presence is negatively associated with un-retirement	Fully supported
1.3	Medicare coverage is negatively associated with un-retirement	Not supported
1.4	Possession of retiree health insurance via previous employer is negatively associated with un-retirement	Fully supported
1.5	Human capital—operationalized as formal education, self-rated health, workforce experience (years of workforce attachment, occupations and industries with the longest tenure), and additional schooling, certification or job training—is positively associated with un-retirement.	Partially supported
1.6	Social capital (marital status, working spouse, parenting) are positively associated with un-retirement	Partially supported
2.1	Volunteering is positively associated with un-retirement	Fully supported
2.2	Caregiving is negatively associated with un-retirement, that is, caregiving is a barrier to un-retirement	Fully supported
3.1	Forced retirement is positively associated with un-retirement	Not supported
3.2	Retirement satisfaction is negatively associated with un-retirement	Not supported

V. Discussion and Implications

Findings from the three research questions—(1) how do economic resources, human and social capital; (2) how do other productive activities; and (3) how does the retirement experience—highlight the complexity of factors that contribute to retirees going back to work or staying retired.

How do economic resources, human capital, and social capital relate to un-retirement?

Key economic resource instruments, such as pensions and retiree health insurance, are major determinants to staying retired after controlling for other covariates. Without these key economic resources, retirees are about 22% and 23% more likely to return to work, respectively. Recall that total household net worth had already taken the financial aspects of pensions into account, yet the factor of not having a pension was still related to going back to work. There might be a psychological component that informs the decision to go back. Perhaps retirees without pensions feel more vulnerable to economic shocks and uncertainties than people with a pension; and thus, the psychological feeling of vulnerability informs a desire to continue to work to buffer against such shocks. Future research should look into this issue more thoroughly; perhaps through qualitative methods in order to understand the meaning and function of pensions in later life. Given the changing social contract of retirement between employers and employees, we can anticipate un-retirement to become more prevalent in the future as the provision of pensions continues to decline.

The Affordable Care Act signed into law by President Obama in 2010 may have implications on un-retirement. For instance, this study found that people without retiree health insurance had a 23% greater probability of returning to work while controlling for other important covariates. Without this key health insurance sponsored by former employers, retirees

themselves would have to pay more out of their own pockets to coverage health care costs. Perhaps retirees returned to work in order to earn more income to pay for medical costs not covered by Medicare. In fact, retirees in this study were subject to pay the donut-hole—or coverage gap—that existed in Medicare Part D prescription drug benefit plan. Since the Affordable Care Act was signed into law in 2010, the donut-hole is slowly being filled and it is expected that the gap will be entirely closed by 2020. This suggests that current and future retirees do not, and will not, have to pay as much out-of-pocket expenses for medical costs. As such, this may reduce the motivation to return to work after retirement should this policy remain in place after the Obama Administration. The implications of this policy can be viewed in two ways. First, the Affordable Care Act may be a major policy innovation to amend and bolster the social contract on retirement. Thus, the Affordable Care Act can be a viewed as a modern invention to preserve a highly valued concept—retirement. The Affordable Care Act can also be viewed another way: fiscally irresponsible. It is well known that solvency of Medicare program is a national priority and any policy that promises more generous benefits is fiscally irresponsible. The validity of either perspective will be determined in the future. Future research should continue to document how this policy impacts labor force participation in later life.

Surprisingly, total household net worth was not significantly related to un-retirement at the bi-variate or multivariate levels. It is surprising because one might intuitively guess that retirees go back to work for economic resources. Yet people in debt or poor were just as likely to return to work as people who were wealthy. The probabilities did not change significantly between units. This may be a measurement issue. The current study utilized the latest technique—the inverse hyperbolic sine function (ARSINH)—which can handle skewness as well as to retain a zero and negative values (Friedlinie, Masa & Chowa, 2012). And in fact, Maestas

(2010) had utilized ARSINH in her study on un-retirement and also found total household assets not to be significant. Yet future research should examine if treating total household net worth in other ways reveals different findings. For example, perhaps one can examine people with debt and without debt to see if there is a difference.

Income was significantly related to un-retirement at the bivariate level but not at the multivariate level; which suggests that when other factors are taken into consideration, income did not play a significant role to returning to work. Stated differently, people with higher income appear to have the same probability of remaining retired when compared to people with lower income. It is also important to note that the probability of returning to work was rather low at the bivariate level for income (HR:1.34), especially when compared to other bivariate relationships such as working status of a spouse (HR:2.93) or informal volunteering (HR:2.54). Overall, this study did not support the lifecycle hypothesis as total household net worth nor total household income were insignificantly related to returning to work.

The occurrence of un-retirement is also related to non-economic factors. Overall, the findings of this study revealed that certain dimensions of human and social capital, formal and informal volunteering, providing care to a spouse, and the retirement experience were just as important to examine. Thus, this more complex understanding of un-retirement yielded deeper insights into this emerging phenomenon.

Generally, findings suggest that people with higher levels of capacity were more likely to return to work in later life. Health was consistently, positively, and strongly related to un-retirement while controlling for a wide range of other factors. Older adults with lower levels of health may not seek employment given their health condition; and employers may hesitate to employ them for fear of increased health insurance costs and liabilities. Bolstering health

throughout life is thus paramount. As policymakers continue to wrestle with solvency issues of Social Security, and many continue to look to older adults to continue to work longer, policymakers cannot overestimate the valuable importance of health promotion policies and practices across the life-course. And increasing the full retirement age or early retirement age (Turner, 2012) may have unethical consequences to populations that do not have the ability—the health—to work longer; and we must protect these individuals with entitled benefits.

The Affordable Care Act of 2010 may also have long-term implications. For example, this policy has a strong emphasis on preventing disease and promoting wellness particularly through employer wellness programs, which includes the opportunity to reimburse for the cost of membership to a fitness center; provide a reward to employees for attending a monthly, no-cost health education seminar; or provide a reward to employees who complete a health risk assessment without requiring them to take further action (U.S. Department of Labor, 2013). These initiatives, in combination with expanding health insurance coverage, may prevent disease and increase overall health—particularly among vulnerable populations. As such, this may result in higher levels of health in later life which may promote the ability to work longer.

Occupational skill levels clearly mattered, where people with higher skills were more likely to return to the labor force. Older adults who have had lifetime experience in low-skilled occupations may compete with younger adults for the same position and employers might prefer to hire younger adults due to fear of health liabilities as well as other ageist attitudes towards older workers. It is conceivable that low-skilled occupational workers may want to return to work for either economic necessity or a desire to remain engaged. In such instances, three policy recommendations are suggested. First, identifying ways to increase the overall skill set from low-occupations to mid-occupations may enhance the probability of un-retirement. Job training is

clearly important and can be done through the Workforce Investment Act Boards as well as Title V of the Older Americans Act. Secondly, informing employers of the benefits of older workers, such as dependability, commitment to the firm, decreased absenteeism, and overall civic mindfulness may alter their attitudes from negative to neutral. Finally, it is necessary for practitioners to identify ways to reduce environmental strain and pressure: ensuring appropriate lighting, walk paths that are risk free of falls, floors that support all workers to stand and walk throughout long periods of time, and ergonomic chairs and desks that facilitate the ability to physically function particularly for low-skilled workers with physically demanding jobs. Intervention research is warranted in these areas.

Formal education was generally significantly related to un-retirement with a hazard ratio of 0.97 (except for Model I), which suggests that people with lower levels of education are more likely to return to work. Continued schooling and training are theoretically important for the accrual of new skills, knowledge, and talents. Yet only one (1) older adult in this large and representative sample of older adults reported to participate in such activity. Traditional employment seeking behaviors, such as attending an educational institution for certification and re-training, appear to be unexplored and not pursued among older adults. This finding resonates with the observations made by Riley & Riley (1971) that society has not kept pace with the changing needs of older adults. The Workforce Investment Act Board as well as Title V of the Older Americans Act are federally funded programs that may help retirees gain the necessary skills to acquire jobs in later life; yet findings from this study suggests such resources are unexplored, suggesting that there remains a structural lag between what older adults need and how policies and practices can help. Future research should explore how to attenuate the gap—or better link retirees—to these programs should retirees seek job opportunities.

Certain dimensions of social capital were also important. Being married did not appear to have a consistent relationship with un-retirement; generally, this factor was insignificant, meaning people who were married or partnered were just as likely to return to work as people who were single. Yet deeper analyses revealed that being married to a working spouse/partner was consistently and positively related to un-retirement. In addition, parenting an adult child or grandchild was also consistently and positively related to un-retirement. Taken together, these social relationships can also be viewed as bolstering an individual's capacity—the social capacity—to learn of job opportunities in later life particularly through the social linkages of people provided by a working partner or the social linkages of active parenthood. Additionally, these roles—being married to a working spouse and parenting—can be viewed as an extension of mid-life. Thus, retirees may feel the need to remain engaged in the labor force as the social role would be consistent and synchronic with the other family roles. Economic factors were controlled, which highlights the importance of examining social roles—and the constitution of family ties specifically.

How do other productive activities relate to un-retirement?

Formal and informal volunteering were positively associated with going back to work after retirement. Productive aging scholars have most viewed these activities as means to improve the health and social connectedness of older adults. And policymakers have often funded national volunteer programs in order to tap into the capacity of older adults' life and work experience, such as Experience Corps, in order to improve the lives of people who are younger. Yet findings from this study also reveal economic benefits for volunteers—they are more likely to gain employment. The salutatory effects of these productive activities cannot be underestimated in that they had a very strong and positive relationship with un-retirement even

while controlling for many important covariates. Such a finding was suggested with our evaluation of the Experience Corps program (Morrow-Howell, McCrary, Gonzales, McBride, Hong & Blinne, 2008) and is confirmed with this study. Volunteering did not appear to compete with un-retirement—this might be because most unretirees were part-time—the average hours worked per week after retirement was about 20 (see Table 12 in appendix). Thus, volunteering and paid-work could help an older adult achieve a balance with paid and nonpaid activities when the paid-activity is not as time-demanding. Bolstering our national volunteer programs for older adults appears to be a valuable investment to older adults as well as for all of society. Many studies have documented the salutatory effects of volunteering on older adults' health, social connectedness and the spill-over effects it has on their families and younger generations (Gattis, Morrow-Howell, McCrary, Lee, Johnson-Reid, & McCoy, 2010; Morrow-Howell, et al. 2008). This study clearly demonstrates that volunteering is a significant predictor to work. Legislation that enhances the national network of volunteer opportunities may yield multiple benefits to many constituents.

Unlike volunteering, however, providing care to a spouse was a major barrier to returning to work. This relationship was consistent whether examined prospectively or concurrently and while controlling for other dimensions, such as economic factors, human and social capital. The caregiving role may have salutatory and deleterious impact on caregivers and future research should examine this more in depth. Overall these findings point to the need to increase supports for caregivers particularly at home and in the workplace. Flexible work arrangements, respite care, and elder care policies and programs may reduce this barrier. Employers that provide elder care assistance may also help to leverage caregivers to work. Perhaps it is possible that caregivers need more time to grieve, rest, and heal after the caregiving role is complete. In

addition, the life insurance may enable caregivers to remain out of the workforce for longer periods. Thus, caregivers may take a long time to return to work—if they ever return—because of the economic resources provided by life insurance as well as the need to grieve and heal after losing a spouse/partner. On the other hand, there might be caregivers that need to return to work due to the social engagement the workplace provides as well as to gain economic resources. All of these suggestions need examination with future research.

How does the retirement experience relate to un-retirement?

The retirement experience was also important to examine. Studies with younger retirees (50+) found that people who were forced to retire were more likely to return. This might be due to the fact that people younger than 62 do not qualify for Social Security retirement income, and thus, do not have a major source of retirement income. This study with a sample of people 62 years or older found that people who chose to retire or were less satisfied were just as likely to return to work as people who were forced or satisfied. While future research is necessary to discern these differences, it might be that people who are younger and unable to qualify for Social Security retirement income and government health coverage, might have more incentive and need to return to work. Thus, people who are forced into retirement and unable to qualify for Social Security would be more likely to unretire. Future research can examine this issue in more depth.

Critique on Theoretical Frameworks

This study did not propose any hypotheses on age itself nor sex or race. Age and sex were clearly and consistently related to un-retirement. In part, no hypotheses were provided because the theoretical frameworks used in this study did not point to these determinants. The synthesis of three major theoretical frameworks—life-cycle hypothesis, human and social capital, and role

theory—did not optimized the explanatory power of the un-retirement phenomenon. Future studies may benefit from adopting different theoretical frameworks, such as cumulative advantage/disadvantage and the life-course. Cumulative advantage theory would clearly point to hypotheses on social stratification and highlight vulnerable populations that may need to work but unable to gain employment due to the lack of capacity and resources. Clearly sex and race will be central to this theoretical framework. Vulnerable populations—women, people with lower levels of human and social capital, non-volunteers, and caregivers—were identified in this study. Even while controlling for important covariates, women retirees were less likely to return to work by approximately 12%. This is a rather surprising finding given the fact that women experience higher levels of poverty in later life, are more dependent on Social Security retirement income, and are likely to live longer and outlive their partners. Given these facts, it is surprising that women were not more likely to return to work when compared to men. On the other hand, this finding is not surprising: women have historically been discriminated from participating in paid activities and these lifetime experiences are also evident in later life. Future research can explore if employment discrimination is at work in the unretirement process. The life-course may yield insights as to the gendered nature of paid and nonpaid-work over one's lifetime, timing of events, and linked lives. Cumulative advantage and life-course theories are similar in that they inherently take the long-view of unfolding phenomena and aim to explore the factors related to the occurrence of events.

Race was not significantly related in any of the analyses performed in this study. This might be because it was badly operationalized into whites and non-whites. There is great heterogeneity among each of these categories—Whites, Blacks, Hispanics, Asians, American Indians, etc. While many researchers point to race as an important factor, ethnicity may have

more explanatory power as this factor taps into shared experiences, values, attitudes and behaviors among a more nuanced set of groups. All of this is for future research. Again, cumulative advantage/disadvantage theory may speak to this phenomenon in a more complete and comprehensive way than the theoretical frameworks utilized in this study.

It was not until the completion of this study that the author remembered the important critique on human capital offered by the renowned economist, Theodore W. Schultz, who in 1961 addressed members of the Seventy-Third Annual Meeting of the American Economic Association in Saint Louis in 1960 (Schultz, 1961). His overall message was a cautionary note to economists: that to coldly apply the human capital perspective to labor force participation is to dehumanize the American worker into an object, such as other forms of capital like land, machinery, buildings. Work should not be just the production of goods and services but rather for self-actualization and as a means to have a fulfilled life. We cannot overlook this critique and should not view older adults as a means for the production of goods and services but rather to promote the opportunities to work in order to fulfill economic as well as psychological and social goals. As such, work should be a choice—the timing as well as the function.

In sum, the concept of retirement is changing in fundamental ways—such that the lack of pensions and retiree health insurance forecasts the increased likelihood of un-retirement to become more prevalent in the future. Retirees with the capacity to return have higher probabilities of returning to work. Vulnerable populations, namely women, people with lower levels of health and education, people who have had low-skilled occupations and caregivers are all less likely to return to work. Federally funded programs such as WIA, Title V of the Older Americans Act, and national volunteer programs may prove to be instrumental to help these populations gain the right skills to return to work should they need and/or want to return.

Flexible work arrangements, elder care, and long-term care insurance may all play an important role to facilitating the inclusion of caregivers within the workplace. With expected cuts in social insurance programs, such as Social Security retirement income, as well as less generous retirement packages from employers, it is expected that un-retirement may become more common and pronounced within coming decades.

VI. Limitations and Future Research

There are several limitations to this study. First, key concepts had limited operationalization. For example, social capital, work experience, retirement satisfaction are all loaded constructs and yet some were operationalized with a single indicator or only a few indicators. While the Health and Retirement Study is the premier data source on older adults, psycho-social domains have not been fully explored or surveyed, and thus, this has resulted in the limited operationalization of key constructs in this study. For example, social bonding, bridging and linking are three dimensions to social capital (Ferlander, 2007) which may yield greater insight as to how retirees gain employment. Yet this particular study only examined a narrow aspect of social capital—that is, social networks. Future research is necessary to examine the rich social fabric that may facilitate un-retirement. Second, while this investigation has examined the presence and intensity of productive activities, it did not examine the quality of such roles. McNamara and Gonzales (2010) found that spouses/partners that enjoyed spending time with each other (quality) were more likely to volunteer together; where only one spouse was likely to volunteer if they did not like their spouse/partner as much. Productive activities may thus enable couples to invest their time and energy outside of the home together, or provide one member to invest their time outside of the home according to their preference. Third, these analyses have placed a heavy focus on individual capacities, yet, other factors, such as

employers' attitudes and policies and practices towards older applicants and workers is clearly important to this phenomenon. Again, the Health and Retirement Study only surveys individuals, not employers, and thus, the overall model has been mis-specified. Fourth, the question with regard to obtaining schooling or training specifically asked about the "past four week". This is a very narrow timeframe and perhaps this led to a finding that only one adult had attended school or gained training. Future research should ask about obtaining schooling or training within the past year or during the job seeking process. Fifth, this study lumped defined benefits and defined contributions into a single factor when they should be examined separately. Future research should attempt to tease out the differences between these two very different saving vehicles. Sixth, this study did not fully optimize the data on pre-retirement and unretirement job characteristics. Future research should examine the overall nature of jobs before and after retirement to gain a deeper understanding of the unretirement phenomenon. Finally, qualitative data, such as personal stories and the meaning of life experiences, are missing from this secondary data analysis. All of these limitations point to directions for future research.

Future Research

Re-conceptualizing Social Capital

Overall, social relations appeared to have a strong influence on the ability to return to work. Social capital within this study was narrowly operationalized (marital status, employment status of spouse/partner, parenting) and may benefit from the broader conceptualization of Lin, Ye and Ensel (1999) and Son, Lin and George (2008). These authors view social capital taking place in three concentric circles. The first and smallest circle is that of social relationships that are "binding", that is, individuals experience life together and have shared experiences in which the egos are the closest (Son, 2012). Here, marital and partner relationships are key social

relations that keep individuals together. Couples access information and knowledge from their broader social network for their respective partners. The second concentric circle is called "bonding" in which is defined by daily contact. Such relations may be helping family and friends (informal volunteering). And finally, the outer concentric circle is called "belonging" in which an individual is a member to community organizations through employment or civic ties, such as formal volunteering. Taken together, these three concentric circles constitute the density of an individual's social network.

The current study could quite feasibly be perceived through a web of social relations in which retirees can gain employment through the binding level (marital status, employment of spouse/partner), bonding (active parenting and the social relations associated with such a role, informal volunteering defined as helping family and friends), and belonging (formal volunteering through an agency). Other important concepts to consider in future studies includes "active social capital," "activated social capital", "presence of contact," "length of contacts' chain," and "contact status" (Son, 2012) which all highlight whether individuals consciously tapped into their social network and if they obtained employment information from individuals in a higher social-economic status or from a similar socio-economic position.

The benefits to re-conceptualizing social capital include (1) theoretically and empirically showing that social capital—a web of social relations spanning the structure of the family to civic ties in the community—are important to obtain employment in later life; (2) it identifies the density of the overall social network, as well as gaps in the three concentric circles, and explicitly identifies vulnerable populations, which can (3) inform policy and programs.

Un-retirement: Maintaining social inequality in later life.

Another avenue to explore is to see if un-retirement perpetuations the social stratification and inequality in later life. It may be obvious that going back to work would improve the economic wellbeing of individuals, yet what remains less obvious is the impact: *by how much does going back to work improve the economic portfolio of individuals* and *by how much does the inequality grow between people who remain retired and people who successfully return to work*? Some studies have found that working longer improves mental and physical health as well as life satisfaction. Thus, a research question is: does un-retirement improve economic security, health, and life satisfaction? And, what are the outcome differences (economic security, physical and mental health, quality of life) between unretirees and people that remained retired? By how much does inequality grow in later life with un-retirement?

Continuous employment versus unretirement

A competing research question for the dissertation was: What are the factors that are associated with continuous employment until the full retirement age and beyond? The unretirement process is complicated and there are several challenges with returning to work in later life. For example, studies have found that unretirees' new jobs pay about a third less than their previous job and are typically part-time jobs without any benefits. Moreover, research has clearly found that it takes older adults three times as long to find employment when compared to younger people. However, people are likely to have higher levels of economic gain if they continue with their current employment until the full retirement age and beyond—if they are able. Identifying which factors enable individuals to maintain employment for longer periods of time is a key question to inform policies and programs, as well as to inform individuals.

Conclusion

In sum, the broader conceptual framework of un-retirement identified various important factors to consider, such as family obligations and social ties, volunteering, caregiving and the retirement experience. Overall this study demonstrated how the absence of key economic resources—pensions and retiree health insurance—were major factors that contributed to retirees returning to work. As the social contract of retirement continues to evolve, it is clear that more responsibility will shift away from employers. And individuals often lack the financial capacity to save for retirement. As such, policies and programs that strengthen federal programs, such as Social Security, Medicare, The Affordable Care Act, as well as other policies that aim to enhance the saving capabilities of individuals to save across their lifetimes are warranted. Clearly human and social capital mattered. People with higher levels of human capital (health, high and mid-skilled occupational history) and social capital (employment of marital status, active parenting) enabled retirees to obtain employment. Programs such as Title V of the Older Americans Act, the Workforce Investment Act Boards, and all technical and academic institutions can also play an instrumental role to enhance the knowledge and skills of retirees. Volunteering—formally or informally—also expanded the social network of retirees and was clearly a predictor to return to work. Policies that facilitate the opportunity for older adults to volunteer may subsequently improve the economic and social conditions of retirees. Caregivers on the other hand, were significantly disadvantaged to return to work. Flexible work options, elder care policies, and respite care programs may help improve the prospects of caregivers returning to work.

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Table 10. Attrition

Year of Death	Number of Deaths
1998	244
1999	450
2000	404
2001	420
2002	403
2003	381
2004	393
2005	372
2006	338
2007	311
2008	201
Total	3,917 (47%)

Table 11. Retirees that returned in subsequent waves

	2000	2002	2004	2006	2008
Unretired					
Yes	235 (3.34)	249 (4.14)	209 (4.04)	162 (3.67)	116 (3.09)

Numbers in parentheses represent percentages

Unretired is operationalized by respondents' claim to work full-time, part-time, or partly-retired.

Table 12. Job characteristics of retirees that return

Variable	2000	2002	2004	2006	2008
Wage (imputed hourly rate)					
N	171	167	145	115	77
Average	$8.86	$15.62	$36.75	$26.49	$10.83
(range; *SD*)	(0-61.02; 7)	(0-288; 33)	(0-3,000; 248)	(0-945; 89)	(0-156; 18)
Median	$7.00	$8.50	$8.00	$9.50	$8.50
Hours worked per week on main job					
N	193	224	190	144	110
Average	21.15	21.63	21.09	18.42	18.85
(range; *SD*)	(1-105; 15)	(0-100; 15)	(0-100; 15)	(0-60; 12)	(0-80; 14)
Median	20.00	20.00	20.00	16.00	18.00
Current job requires…					
much stress, n=	196	219	179	140	101
Strongly agree	4%	4%	2%	4%	4%
Agree	20%	17%	17%	19%	17%
Disagree	62%	64%	70%	60%	61%
Strongly disagree	13%	15%	11%	17%	16%
lots of physical effort, n=	197	218	177	139	101
All/almost all the time	14%	14%	17%	19%	13%
Most of the time	22%	16%	12%	12%	15%
Some of the time	22%	27%	27%	33%	37%
None/almost none of time	42%	43%	45%	36%	35%
stooping, kneeling, crouching, n=	197	218	177	138	99
All/almost all the time	9%	11%	15%	16%	9%
Most of the time	10%	6%	5%	9%	15%
Some of the time	28%	34%	38%	24%	36%
None/almost none of time	53%	50%	42%	51%	37%
lifting heavy loads, n=	197	218	177	139	100
All/almost all the time	7%	3%	6%	4%	2%
Most of the time	6%	5%	4%	5%	9%
Some of the time	20%	24%	21%	22%	21%
None/almost none of time	68%	68%	69%	68%	66%
good eyesight, n=	197	218	177	138	101
All/almost all the time	61%	68%	65%	62%	68%
Most of the time	21%	21%	25%	22%	16%
Some of the time	10%	5%	7%	12%	11%
None/almost none of time	8%	6%	4%	4%	5%

Table 13. Pre- and post- occupational work among retirees that return to the workforce

Occupation	Longest Held Occupation reported in 1998	2000	2002	2004	2006	2008
	4,866	207	235	202	90	49
High-skilled occupations						
Managerial specialty operator	13%	6%	10%	6%	6%	5%
Professional specialty operator/technical supervisor	16%	11%	15%	15%	13%	13%
Sales	9%	12%	8%	14%	13%	6%
Mid-skilled occupations						
Clerical/administrative support	17%	21%	11%	15%	18%	17%
Mechanics/repair	4%	0.5%	1%	2%	3%	0%
Construction trade/extractors	4%	5%	3%	1%	0%	0%
Precision production	5%	2%	3%	3%	2%	2%
Operators: machine	9%	3%	2%	2%	0%	0%
Operators: transport	4%	8%	8%	7%	11%	20%
Operators: handlers	3%	3%	7%	5%	5%	9%
Low-skilled occupations						
Service: providing household, clean, building services	1%	3%	4%	2%	2%	3%
Service: protection	2%	4%	5%	5%	6%	6%
Service: food prep	3%	3%	3%	3%	2%	0%
Personal services	4%	11%	10%	13%	8%	9%
Farming/forestry/fishing	3%	7%	7%	7%	9%	10%

Notes: Numbers in parentheses are 1980 Census-based occupational codes. Coding of occupations was informed by Autor (2010)